



PATENT

Docket No. 3553-4044US2

Express Mail Label No. EJ607473752US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICEUTILITY APPLICATION AND APPLICATION FEE TRANSMITTAL (1.53(b))

ASSISTANT COMMISSIONER FOR PATENTS
Box Patent Application
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

Named Inventor(s) and
Address(es):

Jay S. Walker, 124 Spectacle Lane, Ridgefield, Connecticut 06877

Thomas M. Sparico, 115 Lockwood Road, Riverside, CT 06878

T. Scott Case, 29 Anthony Lane, Darien, Connecticut 06820

For:

A Method and Apparatus For The Sale of Airline-Specified Flight Tickets

Enclosed are:

[X] 27 page(s) of specification, 1 page(s) of Abstract, 26 page(s) of claims[X] 20 sheets of drawing (Figs. 1-15B) [X] formal [] informal[X] 6 page(s) of Declaration and Power of Attorney

[] Unsigned

[] Newly Executed

[X] Copy from prior application

[] Copy of Associate Power of Attorney

[] Deletion of inventors including Signed Statement under 37 C.F.R. § 1.63(d)(2)

[] Incorporation by Reference: The entire disclosure of the prior application, from which a copy of the combined declaration and power of attorney is supplied herein, is considered as being part of the disclosure of the accompanying application and is incorporated herein by reference.

[] Microfiche Computer Program (Appendix)

[] _____ page(s) of Sequence Listing

- ☐ computer readable disk containing Sequence Listing
☐ Statement under 37 C.F.R. § 1.821(f) that computer and paper copies of the Sequence Listing are the same
- ☐ Claim for Priority
- ☐ Certified copy of Priority Document(s)
- ☐ English translation documents
- ☒ Information Disclosure Statement
- ☐ Copy of ____ cited references
- ☒ Copy of PTO-1449 filed in parent application serial No. 09/238,546.
- ☒ Preliminary Amendment
- ☒ Return receipt postcard (MPEP 503)
- ☒ Assignment Papers (assignment cover sheet and assignment documents)
- ☒ Assignment papers filed in parent application Serial No. 08/889,304.
- ☐ Certification of chain of title pursuant to 37 C.F.R. § 3.73(b).
- ☒ This application is a continuation of prior US patent application serial no. 09/238,546, filed January 28, 1999 which is a continuation of prior US patent application serial no. 08/889,304, filed July 8, 1997, now issued US Patent No. 5,897,620, each of which is incorporated in its entirety by reference herein.
- ☒ Cancel in this application original claims 1-143 of the parent application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☒ A preliminary Amendment is enclosed. (Claims added by this Amendment have been properly numbered consecutively beginning with the number following the highest numbered original claim in the prior application.
- ☒ The status of the parent application is as follows:
- ☐ A Petition For Extension of Time and a Fee therefor has been or is being filed in the parent application to extend the term for action in the parent application until _____.
- ☐ A copy of the Petition for Extension of Time in the co-pending parent application is attached.
- ☒ No Petition For Extension of Time and Fee therefor are necessary in the co-pending parent application.
- ☐ Please abandon the parent application at a time while the parent application is pending or at a time when the petition for extension of time in that application is granted and while this application is pending has been granted a filing date, so as to make this application co-pending.
- ☐ Transfer the drawing(s) from the patent application to this application.
- ☒ Amend the specification by inserting before the first line the sentence:
This is a ☒ continuation ☐ divisional ☐ continuation-in-part of a continuation of prior US patent

application serial no. 09/238,546, filed January 28, 1999 which is a continuation of prior US patent application serial no. 08/889,304, filed July 8, 1997, now issued US Patent No. 5,897,620, each of which is incorporated in its entirety by reference herein

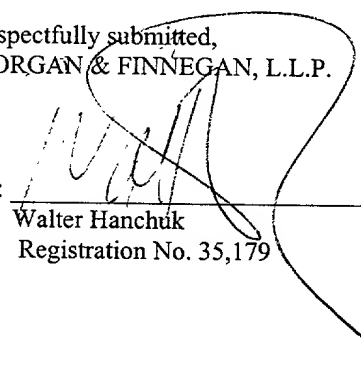
I. CALCULATION OF APPLICATION FEE (For Other Than A Small Entity)

	Number Filed		Number Extra	Rate	Basic Fee
Total Claims	146	-20=	1264	x\$18.00	\$2268.00
Independent Claims	26	- 3=	23	X\$78.00	\$1794.00
Multiple Dependent Claims					
	[] yes		Additional Fee =	\$260.00	
	[X] no		Add'l Fee =	NONE	\$0

Total: \$ 4752.00

- [x] A statement claiming small entity status is attached or has been filed in the above-identified parent application and its benefit under 37 C.F.R. § 1.28(a) is hereby claimed. Reduced fees under 37 C.F.R. § 1.9(F) (50% of total) paid herewith \$ 2376.00.
- [x] Please direct all correspondence to
- Walter G. Hanchuk
Morgan & Finnegan LLP
345 Park Avenue
New York, NY 10154
Phone: 212-758-4800
Fax: 212-751-6849
- [] A check in the amount of \$ 0.00 in payment of the application filing fees is attached.
- [X] Charge Fee(s) to Deposit Account No. 13-4500. Order No. 3553-4044US2. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.
- [X] The Assistant Commissioner is hereby authorized to charge any additional fees which may be required for filing this application, or credit any overpayment to Deposit Account No. 13-4500, Order No. 3553-4044US2. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,
MORGAN & FINNEGAN, L.L.P.

By: 
Walter Hanchuk
Registration No. 35,179

Dated: March 3, 2000

CORRESPONDENCE ADDRESS:
MORGAN & FINNEGAN, L.L.P.
345 Park Avenue
New York, New York 10154
(212) 758-4800
(212) 751-6849 Facsimile

PATENT

DOCKET NO. 3553-4044US2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Jay S. Walker et al. Group Art Unit: TBA
Serial No. : TBA Examiner: TBA
Filed : March 3, 2000
For : **Method and Apparatus for the Sale of Airline-Specified Flight Ticket**

EXPRESS MAIL CERTIFICATE

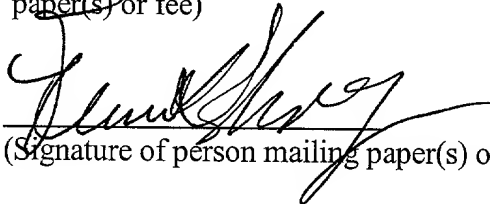
Express Mail Label No. EJ 607473752US

Date of Deposit March 3, 2000

I hereby certify that the following attached paper(s) or fee: Utility Patent and Application Fee Transmittal (enclosing 27 pages of specification, 1 page of Abstract, 26 pages of claims and 20 sheets of formal drawings); Preliminary Amendment; Information Disclosure Statement; Form PTO-1449; copy of previous filed Declaration of Power of Attorney; Return Receipt postcard; and this Express Mail Certificate, is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to Box Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

Vivian Zhang

(Typed or printed name of person mailing
paper(s) or fee)


(Signature of person mailing paper(s) or fee)

Mailing Address:

MORGAN & FINNEGAN, L.L.P.
345 Park Avenue
New York, New York 10154
(212) 758-4800
(212) 751-6849 Telecopier
FORM: EXP-MAIL.NY
Rev. 1/1/93

PATENT

Docket No. 3553-4044US2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Jay S. Walker et al.

Group Art Unit: TBD

Continuation of : Serial No. 09/238,546 (filed 1/28/99)

Examiner: TBD

Filed : March 3, 2000

For : METHOD AND APPARATUS FOR THE SALE OF AIRLINE-SPECIFIED FLIGHT TICKETS

Assistant Commissioner For Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination of the above-referenced application, please amend the application as follows:

In the Claims:

Please cancel claims 1-143 without prejudice or disclaimer.

Please add the following claims:

144. A system comprising:

a memory device having embodied therein information relating to a plurality of airline flights;

a processor in communication with said memory device, said processor configured to:

receive a booking for an airline ticket for a traveler to a specified destination location from a specified departure location at a discount fare associated with said airline ticket, said booking not specifying an airline carrier;

examine a plurality of flights to determine which of said plurality of flights to select for said booking;

select one of the plurality of flights; and thereafter

145. The system of claim 144, wherein said booking does not specify a departure time.

146. The system of claim 144, wherein said booking specifies a departure time range.

147. The system of claim 144, wherein said notice identifies the flight number.

148. The system of claim 144, wherein said notice identifies the departure time.

149. The system of claim 144, wherein said processor is further configured to:

transmit said voucher to the traveler.

151. A system comprising:

a processor in communication with said memory device, said processor configured to:

query a central reservation system containing information regarding a plurality of flights which would satisfy the booking to determine which of said plurality of flights to select for said booking;

provide notice of said selected flight to the traveler, wherein said notice identifies the airline carrier.

153. The system of claim 151, wherein said booking specifies a departure time range.

query a central reservation system containing information regarding a plurality of flights which would satisfy the booking to determine which of said plurality of flights to select for said booking;

select one of the plurality of flights; and thereafter

provide notice of said selected flight, wherein said notice identifies the airline carrier.

169. The system of claim 168, wherein said booking does not specify a departure time.

170. The system of claim 168, wherein said notice identifies the flight number.

171. The system of claim 168, wherein the notice identifies the departure time.

172. The system of claim 168, wherein said processor is further configured to:

issue a voucher for said booking; and

transmit said voucher to the traveler.

173. The system of claim 168 wherein said processor is further configured to issue an e-ticket for said booking.

174. A system comprising:

a memory device having embodied therein information relating to a plurality of airline flights;

a processor in communication with said memory device, said processor configured to:

receive a booking for a concealed carrier airline ticket for a traveler to a specified destination location from a specified departure location at a discount fare associated with said airline ticket;

examine a plurality of flights to determine which of said plurality of flights to select for said booking;

select one of the plurality of flights; and thereafter

provide notice of said selected flight to the traveler, wherein said notice identifies the airline carrier.

175. The system of claim 174, wherein said booking does not specify a departure time.

- | Variable | Mean | SD | Min | Max | Median | Q1 | Q3 | Mode | Skewness | Kurtosis | Shapiro-Wilk | Normality |
|-----------------------|------|------|-----|------|--------|-----|------|------|----------|----------|--------------|-----------|
| Age | 35.2 | 12.5 | 20 | 65 | 32 | 28 | 36 | 30 | 0.15 | 2.10 | 0.98 | Normal |
| Gender | 1.2 | 0.4 | 1 | 2 | 1 | 1 | 1 | 1 | -0.05 | 0.02 | 0.99 | Normal |
| Marital Status | 2.1 | 0.8 | 1 | 3 | 2 | 1 | 3 | 2 | 0.20 | 0.50 | 0.95 | Normal |
| Education | 15.8 | 2.5 | 10 | 20 | 16 | 15 | 17 | 16 | -0.10 | 0.15 | 0.99 | Normal |
| Income | 1200 | 300 | 500 | 2000 | 1100 | 800 | 1400 | 1000 | 0.30 | 1.50 | 0.92 | Normal |
| Occupation | 1.5 | 0.5 | 1 | 3 | 2 | 1 | 3 | 2 | 0.10 | 0.20 | 0.97 | Normal |
| Health Status | 2.5 | 0.5 | 1 | 3 | 2 | 1 | 3 | 2 | 0.05 | 0.10 | 0.99 | Normal |
| Stress Level | 3.2 | 1.0 | 1 | 5 | 3 | 2 | 4 | 3 | 0.15 | 0.30 | 0.96 | Normal |
| Life Satisfaction | 4.5 | 0.8 | 3 | 5 | 4 | 4 | 4 | 4 | -0.05 | 0.05 | 0.99 | Normal |
| Work-Life Balance | 3.8 | 0.9 | 2 | 5 | 4 | 3 | 4 | 4 | -0.10 | 0.10 | 0.98 | Normal |
| Family Support | 4.2 | 0.7 | 3 | 5 | 4 | 4 | 4 | 4 | -0.05 | 0.05 | 0.99 | Normal |
| Community Involvement | 3.5 | 0.8 | 2 | 5 | 3 | 3 | 4 | 3 | 0.10 | 0.20 | 0.97 | Normal |
| Personal Growth | 4.0 | 0.9 | 3 | 5 | 4 | 4 | 4 | 4 | -0.05 | 0.05 | 0.99 | Normal |
| Overall Well-being | 4.8 | 0.6 | 4 | 5 | 4 | 4 | 4 | 4 | -0.05 | 0.05 | 0.99 | Normal |

transmit said voucher to the traveler.

188. A system comprising:

a processor in communication with said memory device, said processor configured to:

examine a plurality of flights which would satisfy the booking to determine which of said plurality of flights to select for said booking;

provide notice of said selected flight to said traveler, wherein said notice identifies the airline carrier.

190. The system of claim 188, wherein said notice identifies the departure time.

- issue a voucher for said booking; and

192. The system of claim 188 wherein said processor is further configured to issue an e-ticket for said booking.

- a memory device;

receive a booking for a concealed carrier airline ticket for a traveler to a specified destination location from a specified departure location within a specified time range at a discount fare associated with said airline ticket;

provide notice of said booking to the traveler, wherein said notice identifies the airline carrier.

- 8

199. The system of claim 198, wherein said notice identifies the flight number.
200. The system of claim 198, wherein said notice identifies the departure time.
201. The system of claim 198, wherein said processor is further configured to:
- issue a voucher for said booking; and
 - transmit said voucher to the traveler.
202. The system of claim 198 wherein said processor is further configured to issue an e-ticket for said booking.
203. A method comprising:
- receiving a booking for an unspecified carrier airline ticket to a specified destination location from a specified departure location within a specified time range on specified dates at a discounted fare associated with said airline ticket, said booking not specifying a departure time;
 - relaying said booking to an airline carrier, and thereafter
 - outputting notice of the actual flight information, including a flight number, departure time, departure date, and airline identity.
204. The method of claim 203 further comprising:
- issuing a voucher for said booking; and
 - transmitting said voucher to a traveler.
205. The method of claim 203 further comprising issuing an e-ticket for said booking.
206. A method comprising:
- receiving from a traveler an offer to purchase an unspecified carrier airline ticket to a specified destination location from a specified departure location on a specified date at a traveler specified price;
 - booking an airline ticket which satisfies said offer; and thereafter
 - outputting notice to the traveler of the actual flight information, including a flight number, departure time, departure date, and airline identity.

207. The method of claim 206, wherein said offer is received through an online connection.
208. The method of claim 206, wherein said offer is received via an interactive voice response unit.
209. The method of claim 206, wherein said offer is guaranteed by a credit account.
210. The method of claim 206 further comprising:
 - issuing a voucher for said booking; and
 - transmitting said voucher to a traveler.
211. The method of claim 206 further comprising issuing an e-ticket for said booking.
212. A method for using a computer to process the sale of travel services comprising:
 - receiving a booking for a discount fare airline ticket for a traveler to a specified destination location from a specified departure location, said booking not specifying an airline carrier;
 - examining a plurality of flights which would satisfy the booking to determine which of said plurality of flights to select for said booking;
 - selecting one of the plurality of flights; and thereafter
 - providing notice to the traveler of said selected flight, wherein said notice identifies the airline carrier.
213. The method of claim 212, wherein said booking does not specify a departure time.
214. The method of claim 212, wherein said booking specifies a departure time range.
215. The method of claim 212, wherein said notice identifies the flight number.
216. The method of claim 212, wherein said notice identifies the departure time.
217. The method of claim 212, further comprising:
 - issuing a voucher for said booking; and
 - transmitting said voucher to the traveler.
218. The method of claim 212 further comprising issuing an e-ticket for said booking.

- | Variable | Mean | SD | Min | Max |
|-------------------------------------|------|------|-----|-----|
| Age | 34.5 | 10.2 | 21 | 55 |
| Gender | 0.5 | 0.5 | 0 | 1 |
| Marital status | 0.6 | 0.5 | 0 | 1 |
| Education | 12.5 | 1.5 | 9 | 16 |
| Income | 15.2 | 5.8 | 10 | 25 |
| Health status | 1.2 | 0.8 | 0 | 3 |
| Stress level | 2.1 | 1.2 | 1 | 4 |
| Life satisfaction | 3.5 | 1.0 | 2 | 5 |
| Work engagement | 4.2 | 0.9 | 3 | 5 |
| Organizational commitment | 4.5 | 0.8 | 3 | 5 |
| Job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Turnover intention | 1.8 | 1.1 | 0 | 4 |
| Organizational citizenship behavior | 3.8 | 1.2 | 2 | 5 |
| Employee well-being | 3.2 | 1.1 | 2 | 5 |
| Work-life balance | 3.0 | 1.0 | 2 | 4 |
| Perceived organizational support | 4.0 | 0.9 | 3 | 5 |
| Psychological safety | 3.9 | 1.0 | 2 | 5 |
| Trust in supervisor | 4.3 | 0.8 | 3 | 5 |
| Trust in organization | 4.1 | 0.9 | 3 | 5 |
| Organizational justice | 4.4 | 0.7 | 3 | 5 |
| Employee voice | 3.7 | 1.1 | 2 | 5 |
| Employee silence | 2.5 | 1.0 | 1 | 4 |
| Employee engagement | 4.6 | 0.7 | 3 | 5 |
| Employee retention | 4.7 | 0.6 | 3 | 5 |
| Employee turnover | 1.5 | 0.8 | 0 | 3 |
| Employee absenteeism | 1.2 | 0.7 | 0 | 3 |
| Employee productivity | 4.8 | 0.6 | 3 | 5 |
| Employee quality of work life | 3.6 | 1.0 | 2 | 5 |
| Employee job design | 4.0 | 0.9 | 3 | 5 |
| Employee job security | 4.2 | 0.8 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | 4.1 | 0.9 | 3 | 5 |
| Employee job commitment | 4.3 | 0.7 | 3 | 5 |
| Employee job engagement | 4.5 | 0.6 | 3 | 5 |
| Employee job satisfaction | | | | |

- | Variable | Mean | SD | Min | Max |
|---------------------|------|------|-----|-----|
| Age | 38.5 | 10.5 | 25 | 55 |
| Gender | 1.0 | 0.0 | 0 | 1 |
| Marital status | 1.0 | 0.0 | 0 | 1 |
| Education | 12.5 | 1.5 | 10 | 15 |
| Income | 1.5 | 0.5 | 1 | 2 |
| Health status | 1.0 | 0.0 | 0 | 1 |
| Smoking status | 1.0 | 0.0 | 0 | 1 |
| Alcohol consumption | 1.0 | 0.0 | 0 | 1 |
| Exercise frequency | 1.0 | 0.0 | 0 | 1 |
| Stress level | 1.0 | 0.0 | 0 | 1 |
| Sleep quality | 1.0 | 0.0 | 0 | 1 |
| Appetite | 1.0 | 0.0 | 0 | 1 |
| Weight change | 1.0 | 0.0 | 0 | 1 |
| Blood pressure | 1.0 | 0.0 | 0 | 1 |
| Cholesterol level | 1.0 | 0.0 | 0 | 1 |
| Glucose level | 1.0 | 0.0 | 0 | 1 |
| Heart rate | 1.0 | 0.0 | 0 | 1 |
| Breathlessness | 1.0 | 0.0 | 0 | 1 |
| Swelling | 1.0 | 0.0 | 0 | 1 |
| Fatigue | 1.0 | 0.0 | 0 | 1 |
| Mood | 1.0 | 0.0 | 0 | 1 |
| Energy | 1.0 | 0.0 | 0 | 1 |
| Concentration | 1.0 | 0.0 | 0 | 1 |
| Memory | 1.0 | 0.0 | 0 | 1 |
| Attention | 1.0 | 0.0 | 0 | 1 |
| Decision making | 1.0 | 0.0 | 0 | 1 |
| Problem solving | 1.0 | 0.0 | 0 | 1 |
| Communication | 1.0 | 0.0 | 0 | 1 |
| Relationships | 1.0 | 0.0 | 0 | 1 |
| Work performance | 1.0 | 0.0 | 0 | 1 |
| Life satisfaction | 1.0 | 0.0 | 0 | 1 |
| Overall health | 1.0 | 0.0 | 0 | 1 |

- [illegible]

247. The method of claim 245, wherein said booking specifies a departure time range.
248. The method of claim 245, wherein said notice identifies the flight number.
249. The method of claim 245, wherein said notice identifies the departure time.
250. The method of claim 245, further comprising:
- issuing a voucher for said booking; and
 - transmitting said voucher to a traveler.
251. The method of claim 245 further comprising issuing an e-ticket for said booking.
252. A method of selling discount fare airline tickets without undermining a published fare structure, comprising:
- establishing an acceptable discount fare for airline carriage to a specified destination location from a specified departure location on a specified date;
 - making said discount fare for airline carriage available to potential travelers without revealing airline carrier identity or departure time;
 - receiving a booking of said discount fare for airline carriage; and thereafter
 - outputting notice of the actual flight, wherein said notice identifies the airline carrier and departure time.
253. The method of claim 252, wherein said booking does not specify a departure time.
254. The method of claim 252, wherein said booking specifies a departure time range.
255. The method of claim 252, wherein said notice identifies the flight number
256. The method of claim 252, wherein said notice identifies the departure time.
257. The method of claim 252, further comprising:
- issuing a voucher for said booking; and
 - transmitting said voucher to a traveler.
258. The method of claim 252 further comprising issuing an e-ticket for said booking.

266. The system of claim 265, wherein said processor is further configured to:

receive an offer to purchase an unspecified carrier airline ticket for a traveler to a specified destination location from a specified departure location on a specified date within a specified time range at a traveler specified price, said offer not specifying an airline carrier;

book an airline ticket that satisfies said offer; and thereafter

output notice to the traveler of the actual flight information, including flight number, departure time and airline.

266. The system of claim 265, wherein said processor is further configured to:

book an airline ticket that satisfies said offer; and thereafter

266. The system of claim 265, wherein said processor is further configured to:

266. The system of claim 265, wherein said processor is further configured to:

266. The system of claim 265, wherein said processor is further configured to:

266. The system of claim 265, wherein said processor is further configured to:

266. The system of claim 265, wherein said processor is further configured to:

a processor in communication with said memory device, said processor configured to:

book an airline ticket that satisfies said offer; and thereafter

system of claim 265, wherein said processor is further configured to:

transmit said voucher to a traveler.

267. The system of claim 265 wherein said processor is further configured to issue an e-ticket for said booking.
268. The system of claim 265, wherein said offer is received through an online connection.
269. The system of claim 265, wherein said offer is received via an interactive voice response unit.
270. The system of claim 265, wherein said offer is guaranteed by a financial account.
271. A method comprising:
 - receiving a booking for a concealed carrier airline ticket for a traveler to a specified destination location from a specified departure location at a discount fare associated with said airline ticket;
 - examining a plurality of flights to determine which of said plurality of flights to select for said booking;
 - selecting one of the plurality of flights; and thereafter
 - providing notice of said selected flight to the traveler, wherein said notice identifies the airline carrier.
272. The method of claim 271, wherein said booking does not specify a departure time.
273. The method of claim 271, wherein said booking specifies a departure time range.
274. The method of claim 271, wherein said notice identifies the flight number.
275. The method of claim 271, wherein said notice identifies the departure time.
276. The method of claim 271, further comprising:
 - issuing a voucher for said booking; and
 - transmitting said voucher to the traveler.
277. The method of claim 271 further comprising issuing an e-ticket for said booking.

278. A method comprising:
- receiving a booking for a concealed carrier airline ticket for a traveler to a specified destination location from a specified departure location at a discount fare associated with said airline ticket;
 - querying a central reservation system containing information regarding a plurality of flights which would satisfy the booking to determine which of said plurality of flights to select for said booking;
 - selecting one of the plurality of flights; and thereafter
 - providing notice of said selected flight to the traveler, wherein said notice identifies the airline carrier.
279. The method of claim 278, wherein said booking does not specify a departure time.
280. The method of claim 278, wherein said booking specifies a departure time range.
281. The method of claim 278, wherein said notice identifies the flight number.
282. The method of claim 278, wherein said notice identifies the departure time.
283. The method of claim 278, wherein said processor is further configured to:
- issue a voucher for said booking; and
 - transmit said voucher to the traveler.
284. The method of claim 278, further comprising issuing an e-ticket for said booking.
285. A method comprising:
- receiving a booking for a concealed carrier airline ticket for a traveler to a specified destination location from a specified departure location within a specified time range at a discount fare associated with said airline ticket;
 - examining a plurality of flights which would satisfy the booking to determine which of said plurality of flights to select for said booking;
 - selecting one of the plurality of flights; and thereafter
 - providing notice of said selected flight to said traveler, wherein said notice identifies the airline carrier.

286. The method of claim 285, wherein said notice identifies the flight number.
287. The method of claim 285, wherein said notice identifies the departure time.
288. The method of claim 285, further comprising:
issuing a voucher for said booking; and

transmitting said voucher to the traveler.
289. The method of claim 285 further comprising issuing an e-ticket for said booking.

REMARKS

This Preliminary Amendment is submitted prior to examination of the instant patent application. Claims 144-289 are pending in the application. Claims 1-143 have been canceled. New claims 144-289 have been added. No new matter has been added.

Applicants respectfully submit that each of the pending claims are in condition for allowance.

The Examiner is invited to contact Applicants' undersigned representative to discuss any issues which may advance the prosecution of the instant application.

525773_1

**A METHOD AND APPARATUS
FOR THE SALE OF AIRLINE-SPECIFIED FLIGHT TICKETS**

TECHNICAL FIELD

This invention relates generally to a method and system for selling airline tickets.

BACKGROUND

Airlines have developed Revenue Management Systems (RMS) to optimize their revenue per flight. Revenue management can be separated into two distinct parts: pricing and seat inventory control. Pricing involves the establishment of fare classes and tariffs within those classes for each flight. Seat inventory control is the periodic adjustment of available seats for the various fare classes so as to optimize the passenger mix and thereby maximize the generated revenue. In particular, the objective is to fly an aircraft as full as possible without allowing the earlier-booking (discount-fare) leisure passengers to displace the later-booking (full-fare) business passengers.

Presently, tickets offered for sale by the airlines specify information including an itinerary (e.g., origin/destination locations and dates for travel) together with a flight number and a flight time. Once a passenger books a ticket, the airline is required to place the passenger aboard the flight indicated on the ticket rather than aboard a different flight for the same itinerary. In particular, once a ticket is booked, an airline has little or no flexibility in placing a discount-fare traveler aboard a later flight for the same itinerary in order to make available a seat for a full-fare business traveler. Even tour packages, once completed, do not provide the airlines with any flight-time flexibility.

Moreover, an airline's RMS typically knows well in advance, based on available historical data, that it will have empty seats on a given route (whether or not it will actually have empty seats on a given flight) -- with more seats empty at certain times of the day or days of the

Placing a passenger on "standby" is one way for the airlines to fill empty seats. However, this practice is limited to instances where some oversight on the part of either the passenger or the airline has occurred and the passenger is now attempting to get aboard the next available flight. For example, the passenger may have arrived too late and missed his flight, or the passenger may have purchased a ticket at or near the time of the flight. However, the airlines generally do not use standby because of the high costs associated therewith. Moreover, standby is inconvenient for the passenger because there is no guarantee that he will get a seat on a flight departing that same day.

“Open” tickets are known in the field of airline travel where a passenger buys a ticket that can be used for any flight having an available seat. Open tickets, however, are utilized for flights selected by passengers. Open tickets thus do not solve the problem of how to fill available airline seats for the highest revenue and/or without undermining established fare structures..

Tour packages are known wherein a traveler initially receives a travel itinerary as part of a tour package purchase, and subsequently receives a ticket including notification of the flight number and time. In such tour packages, a tour operator is typically involved in purchasing groups of tickets. Again, while tour packages provide the operators with some flexibility in obtaining group rates for tickets, they do not solve the airline's problems of profitability filling empty seats.

Travel on military flights is typically according to orders, which gives the military operators absolute control over their flights. However, military flights are typically not paid for, and hence the military does not face the problem of revenue managing their seat allocation which is

so problematic for commercial airlines.

Furthermore, although various "businesses" have existed and continue to exist which collect consumer demand for airline tickets and then manually interact with the airlines by way of phone or fax to purchase airline tickets for their clients at a reduced fare, these services are not truly automated in that they do not operate within the framework of the existing central reservation systems (CRSs), through which all airlines offer tickets for sale and all travel agents book such tickets.

As such, there is currently no way for the airlines to routinely fill excess capacity without undermining their underlying fare structures.

SUMMARY OF INVENTION

The problems identified above are solved and a technical advance is achieved in the art by providing, in accordance with the present invention, a system and method for providing a flexible airline ticket of unspecified departure/arrival time (i.e. an "unspecified-time ticket"). Such a ticket represents a purchased seat on a specific flight to be determined, by the airlines, for a traveler-specified itinerary (e.g., origin and destination locations together with the dates for travel).

A method according to one embodiment of the present invention includes: (1) creating a special fair listing for air travel to a specified destination from a specified origin on a specified day, the special fare listing excluding a specified departure time; (2) making available the special fare listing; (3) examining a plurality of flights which would fulfill the terms of a ticket corresponding to said special fare listing to determine which of the plurality of flights to select for the ticket, each of the plurality of flights including a specified departure time; (4) selecting one of the plurality of flights; and (5) providing notification of flight information, including the departure time, corresponding to the selected flight.

Thus, one embodiment of the present invention provides airlines with the

flight-time flexibility necessary to fill potentially thousands of seats that would otherwise have remained empty each day. Airlines benefit from the additional flexibility of being able to balance intra-day demand by placing unspecified-time ticket holders aboard "low load" flights on a given day. Moreover, because of the flexibilities required of the unspecified-time traveler, unspecified-time tickets (and the reduced airfares associated therewith) are likely to attract leisure travelers unwilling to purchase tickets at the available published fares and, at the same time, are likely to "fence out" business travelers unwilling to risk losing the major part of the work day at either end of their trips due to the uncertainty of the exact times of the flight they might be placed on.

Moreover, the flexibilities required of the unspecified-time traveler need not be limited to a departure time. Rather, the flexibilities may include the airline, the departing airport, the destination airport, or any other restriction that increases the flexibility afforded the airline in placing the traveler aboard a flight. The present invention therefore permits airlines to fill otherwise empty seats in a manner that stimulates latent and unfulfilled leisure travel demand while leaving their underlying fare structures intact.

A system and method is also disclosed for providing a concealed carrier airline ticket, which permits an airline to conceal its identity when offering for sale through a CRS discounted tickets for flights on a specific route on a specific day.

A method according to this alternate embodiment includes: (1) creating an alias flight record based on an actual flight, the alias flight record excluding a carrier name; and (2) making available the alias flight record for electronic posting in a CRS.

Further aspects of the present invention will become apparent during the course of the following description and by reference to the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram illustrating one embodiment of the present invention.

FIG. 2 depicts a block diagram of an exemplary revenue management system (RMS).

FIG. 3 depicts a block diagram of an exemplary central reservation system (CRS).

FIG. 4 illustrates the interaction between the RMS, the CRS, the airline reservation system (ARS) and the various databases depicted in FIGS. 2 and 3.

FIG. 5 illustrates the actual demand over time for airline tickets within a given fare class, relative to forecasted demand;

FIG. 6 illustrates an exemplary forecasted demand analysis database.

FIG. 7 illustrates an exemplary flight schedule database.

FIG. 8 illustrates an exemplary seat allocation database.

FIG. 9 illustrates an exemplary pricing and restrictions database.

FIG. 10 illustrates an exemplary reservation database.

FIG. 11a-11c are flow charts illustrating an exemplary process by which an airline's RMS creates both actual flights and special fare listings.

FIG. 12 is a flow chart illustrating an exemplary process by which an airline's RMS initially allocates inventory to a special fare listing.

FIGS. 13a and 13b are flow charts illustrating an exemplary process by which an airline's RMS dynamically increases or decreases the allocation of inventory to a special fare listing.

FIGS. 14a and 14b are flow charts illustrating an exemplary process by which travelers book unspecified-time tickets.

FIGS. 15a and 15b are flow charts illustrating an exemplary process by which an airline's RMS selects an actual flight on which to place an unspecified-time ticket holder.

DETAILED DESCRIPTION

Referring now to the drawings, FIG. 1 illustrates one embodiment of the present invention.

As shown in FIG. 1, an airline's 100 revenue management system (RMS) 200 analyzes historical demand and pricing data for previous flights along a specific route (e.g., NY-LA) during the relevant time period to determine the number of actual flights to offer for a specific route on a specific day. Once this determination is made, the RMS 200 instructs the airline scheduling system 160 to create the actual flights. The RMS 200 also instructs the airline scheduling system 160 to create a special fare listing for the same route on the same day. The term "special fare listing" as used herein is as a listing in an Airline Reservation System 150 (ARS), CRS 300 or the like for which a traveler 105 may purchase an "unspecified-time" ticket. The "unspecified-time ticket, in accordance with the present invention, is an official airline ticket that represents a seat on an actual flight to be determined later, by the airline 100, for a traveler-specified itinerary including the origin and destination locations together with the travel dates. The airline scheduling system 160 creates both the actual flights and the special fare listing, as instructed, and transmits the scheduling information to the ARS 150.

The RMS 200 also establishes a plurality of fare classes for the actual flights, utilizes historical data to forecast an expected demand over time (i.e., a demand curve) for tickets within a given fare class at a given price, and initially allocates and prices inventory sufficient to satisfy the expected demand. The RMS 200 transmits this inventory and pricing information to the ARS 150.

The RMS 200 also initially allocates inventory to the special fare listing corresponding to seats on the actual flights for the same route and day, which are forecasted to be empty at the time of departure. As is well-known in the art, the RMS 200 can predict, based on available historical data, whether it will have empty seats on a given route. Moreover, the inventory initially allocated to the special fare listing is preferably offered at a lower fare/class than

For the actual flights, the RMS 200 will monitor the actual demand within each fare class relative to the forecasted demand to dynamically reevaluate the inventory allocated to both the actual flights and the special fare listing. In accordance with the present invention, if the actual demand is less than the expected demand, the RMS 200 will allocate additional inventory to the special fare listing at a lower fare/class than the currently available fare/class on the actual flights. Conversely, if the actual demand is greater than the expected demand, the RMS 200 will reduce or eliminate inventory for the special fare listing. In either case, the RMS 200 transmits inventory and pricing information for the special fare listing to the ARS 150 in the same manner as for the actual flights.

7

on unspecified-time tickets.

As shown in FIG. 1, a traveler 105 contacts his travel agent 110 by way of phone, fax, online connection, e-mail or in-person, and provides the travel agent 110 with information regarding a specific itinerary. An itinerary includes the origin and destination locations together with the travel dates. The travel agent 110 then logs into the CRS 300 and obtains flight records for all flights that satisfy the requested itinerary. One of the flight records may be designated a "special fare listing" indicating that a traveler can purchase an unspecified-time ticket for a flight that satisfies the requested itinerary, although the actual flight itself and thus, the flight time, has not yet been determined by the airline. In any event, the unspecified-time ticket represents a commitment for carriage (*i.e.*, an obligation by the airline to provide a seat on a flight) for the requested itinerary.

The travel agent 110 would then discuss the benefits of booking an unspecified-time ticket for a special fare listing with the traveler 105. One example of such benefits includes reduced airfare as compared with conventional airline tickets. If instructed by the traveler 105 and, if there is available inventory for the special fare listing, the travel agent 110 will book the unspecified-time ticket through the CRS 300 and create a passenger name record (PNR) number. Upon purchasing the unspecified-time ticket, the traveler 105 is provided with a special fare listing number and a notification date, by which date the traveler 105 will be provided with the actual flight number and a departure time.

The CRS 300 transmits in real-time, or on a periodic basis, as determined by the airline 100, information regarding unspecified-time tickets booked for each airline to that airline's ARS 150, which then forwards this information to the RMS 200. For each booking, the RMS 200 will obtain a listing of all actual flights that satisfy the travel parameters (*i.e.*, O/D pair and date) of the unspecified-time ticket. The RMS 200 then analyzes the expected vs. the actual demand for each class on each actual flight and determines whether the actual demand is less than the expected

demand for tickets for one or more of the actual flights. To narrow any discrepancy, the RMS 200 instructs the ARS 150 to place a passenger from a special fare listing onto an actual flight. In the case where bookings are transmitted to the CRS 300 in real-time, the travel agent notifies the passenger of the actual flight information in real-time (within seconds or minutes after transmission of the booking) or, alternatively, by a notification date, as will be discussed in detail hereinafter. The airline 100 prints the ticket for the actual flight with the actual flight number and the departure/arrival times and, transmits the ticket to the traveler 105, either directly or via the travel agent 110, depending upon whether the traveler 105 purchased the unspecified-time ticket through a travel agent 110 or directly from the airline 100.

Moreover, the flight record for a special fare listing, in addition to not specifying an actual flight number and departure time, may also not specify a ticket price. In this embodiment, the airline 100 effectively solicits travelers 105 to submit bids for the unspecified-time tickets in the manner discussed in co-pending U.S. Patent Application Serial No. 08/707,660, filed September 4, 1996, and entitled, "Method and Apparatus for a Cryptographically Assisted Commercial Network System Designed to Facilitate Buyer-Driven Conditional Purchase Offers" and in a U.S. Patent Application entitled, "Conditional Purchase Offer Management" filed concurrently herewith, both of which are incorporated herein by reference. For example, a bid so submitted may specify that the traveler 105 wants to purchase an unspecified-time ticket for a specific itinerary, and that the traveler is willing to pay \$375 for the ticket. Moreover, the airline 100 may require that payment be guaranteed (*e.g.*, by supplying a credit card number with a bid) upon acceptance by the airline.

The traveler 105 could submit a bid to the airline 100 in any number of ways. For example, a bid could be submitted via an online direct connection. The travel agent 110 could also submit a bid on behalf of the traveler 105 using the e-mail capabilities of the CRS 300. Alternatively, the traveler 105 could submit a bid via an Interactive Voice Response Unit (IVRU)

(not shown) coupled to the airline's RMS 120. In either case, an airline will be able to fill excess seating capacity without lowering its published fares and thus, without initiating a fare war.

The RMS 200 would render a decision to either accept or reject the bid based on the inventory and pricing guidelines in the RMS 200. The traveler 105 would be notified of the RMS's decision via the IVRU or a live operator. Also, if the bid were accepted by the RMS 200, the RMS 200 would then select an actual flight to place the unspecified-time traveler 105 aboard, as described above, and the traveler 105 would be notified of the actual flight number and flight time accordingly.

Moreover, although the foregoing illustrates unspecified-time tickets offered by an individual airline, a "generic" unspecified-time ticket may also be offered, which, in addition to not specifying a flight number and flight time, would also not specify an airline. The "generic" unspecified-time ticket, like the airline-specific unspecified-time ticket, would be assigned a special fare listing number. As such, any airline offering actual flights that satisfy the travel parameters of the generic unspecified-time ticket and seeking to fill excess seating capacity could then query the CRS for bookings of generic unspecified-time tickets and place the traveler aboard one of its flights.

FIG. 2 depicts a block diagram of an exemplary RMS 200 maintained by airline 100. The RMS 200 performs all the operations of a conventional RMS and, performs additional operations in accordance with the present invention, as will be discussed in detail hereinafter. The RMS 200 includes a CPU 205 together with associated memory (210, 215) for: (1) creating both actual and special fare listings; (2) allocating inventory and fare/class to those flights; and (3) selecting an actual flight on which to place unspecified-time ticket holders, as will be discussed in detail hereinafter. The CPU 205 is coupled to an airline reservation system (ARS) via a communications port 220 for obtaining unspecified-time bookings from the ARS. As shown in FIG. 2, the CPU 205 is also coupled to a data storage device 225.

Data storage device 225 includes a variety of databases including a forecasted demand analysis database 230, a flight schedule database 240, a seat allocation database 245, a pricing and restrictions database 250, and a reservation database 255.

The flight schedule database 240 of data storage device 225 contains flight information including the origin and destination locations together with a departure date. The flight information also includes an actual flight number and the flight times, except in the case of a special fare listing. The seat allocation database 245 contains available inventory for each fare class on a given flight. The pricing and restrictions database 250 contains pricing information and related restrictions for each fare class on a given flight. The reservation database 255 contains each booking of a ticket for a given fare class on a given flight. Finally, the forecasted demand analysis database 230 contains information on each selling price for each fare class for a given flight, and the forecasted demand at each selling price, as established by the RMS 200. Each of these databases will be discussed in detail hereinafter in conjunction with FIGS. 6-10.

FIG. 3 depicts a block diagram of an exemplary central server 301 of a central reservation system 300. The CRS 300 performs all the operations of a conventional CRS and, performs additional operations in accordance with the present invention, as will be discussed in detail hereinafter. The server 301 includes a CPU 305 together with associated memory (310, 315) for processing: (1) flight information received from the airlines; (2) itinerary inquiries regarding flight availability; and (3) ticket bookings. The CPU 305 is coupled to the CRS 300 and the airlines 100 via a communications port 320. The CPU 305 is also coupled to an electronic mail processor 322 for processing and storing (in storage device 323) e-mail messages transmitted between the CPU 305 and the various travel agents, airlines and the like.

As shown in FIG. 3, the CPU 305 is further coupled to a data storage device 325. Data storage device 325 may include a variety of databases including flight schedule database 240, seat allocation database 245, pricing and restrictions database 250, and reservation database 255.

These databases contain essentially the same information as the like-identified databases (240, 245, 250, 255) in the RMS 200.

FIG. 4 illustrates the manner in which the RMS 200 utilizes the databases discussed in connection with FIG. 2 in implementing a pricing and inventory allocation process with respect to both actual flights and special fare listings. The format and content of the databases depicted in FIG. 4 are discussed in detail hereinafter in conjunction with FIGS. 6-10. It is to be noted that the pricing and inventory allocation process may be executed by the RMS 200 initially when a flight is first added to the flight schedule and thereafter periodically to reallocate and price available inventory in response to demand and external events.

When either an actual flight or special fare listing is first added to the flight schedule of an airline 100, a record of the flight with the appropriate itinerary information is created by the RMS 200 in the flight schedule database 240. In addition, the RMS 200 will perform inventory allocation and pricing for both actual flights and special fare listings, to initially populate the fields of the seat allocation database 245, pricing and restrictions database 250 and forecasted demand analysis database, as shown in FIG. 4.

Generally, during the initial pricing and allocation process for an actual flight, the RMS 200 attempts to maximize revenue by first establishing a plurality of fare classes and thereafter allocating the number of seats and price assigned to each fare class. To this end, the RMS 200 will utilize historical demand information stored in the forecasted demand analysis database 230 for prior periods, which essentially provides a demand curve for each selling price of a given fare class on each actual flight. For example, when allocating and pricing inventory for an actual flight, the RMS 200 may analyze demand trends for similar flights from previous relevant time periods, in a known manner. Moreover, it is to be understood that conventional RMS systems typically respond to competitive forces and other external events, such as fare wars or increased demand due to a large event, such as the Olympics, as indicated by the external events

database 252, depicted in FIG. 4. Once calculated, the initial seat allocation and pricing information is stored in the seat allocation database 245 and the pricing and restrictions database 250, respectively. The initial price for each fare class and the forecasted demand is also preferably stored in the forecasted demand analysis database 230.

In accordance with the present invention, the RMS 200 also initially allocates inventory to the special fare listing corresponding to seats on the actual flights for the same route and day, which are forecasted to be empty at the time of departure. The RMS 200 can predict, based on available historical data, whether it will have empty seats on a given route (whether or not it will actually have empty seats on a given flight) -- with more seats empty at certain times of the day or weeks of the year. Moreover, the inventory initially allocated to the special fare listing is offered at a lower fare/class than the currently available fare/class on the actual flights to encourage sales of unspecified-time tickets.

As shown in FIG. 4, the airline reservation system (ARS) 150 and the central reservation system (CRS) will each access the established flight schedule database 240, seat allocation database 245, and pricing and restrictions database 250 to perform itinerary queries. In addition, as tickets are sold by the airline 100, the ARS 150 or CRS 300 will decrement the available inventory in the seat allocation database 245. In this manner, the seat allocation database 245 maintains an up-to-date representation of the available inventory for both actual flights and special fare listings.

For the actual flights, the RMS 200 will continue to monitor the actual demand 510 within each fare class relative to forecasted demand 520, as maintained in the forecasted demand analysis database 230 and illustrated in FIG. 5. The RMS 200 monitors current actual demand information by retrieving detailed inventory data from the seat allocation database 245 or summary inventory data from the forecasted demand analysis database 230.

An airline 100 can correct for forecasting errors, or other competitive forces which

have produced unanticipated excess capacity 530 on a specific route by lowering its fare/class on the actual flights. In accordance with the present invention, the airline 100 can also correct for such forecasting errors by increasing the inventory allocated to the special fare listing at a lower fare/class than the currently available fare/class on the actual flights. Due to the discouraged use of unspecified-time tickets by full-fare business travelers, an airline 100 can sell such excess capacity at a discount, without undermining its existing published fare structure. Thus, in a preferred embodiment, the RMS 200 will periodically execute the process discussed below in conjunction with FIGS. 13a and 13b, to make unspecified-time tickets available for purchase by travelers.

FIG. 6 illustrates an exemplary forecasted demand analysis database 230, which records each selling price for each fare class for a given actual flight, and the forecasted demand at each selling price as established by the RMS 200. As previously indicated, when a flight is first added to the flight schedule database of an airline 100, a record of the initial price for each fare class and the forecasted demand is preferably established in the forecasted demand analysis database 230. In addition, new records are preferably created for each new selling price that is established for each fare class by the RMS 200, as part of the dynamic inventory reallocation process.

The forecasted demand analysis database 230 includes a plurality of records, each associated with a different selling price for a given fare class on a given flight. For each flight number in field 605, the forecasted demand analysis database 230 includes the departure date in field 610, the origin and destination locations, in fields 615 and 620 respectively, and the corresponding offered prices and fare classes, in fields 625 and 630 respectively. Finally, the forecasted demand analysis database 230 preferably records the actual quantity of tickets sold by the airline at each offered price for each fare class in field 640 and the corresponding expected quantity in field 650. The actual quantity of tickets sold may be recorded in real-time as tickets are actually sold or by means of batch processing on a periodic basis.

FIG. 7 illustrates an exemplary flight schedule database 240 which preferably

- stores specific flight information for each origin and destination location pair (O & D Pair). The flight schedule database 240 maintains a plurality of records, each associated with a different flight. For each O&D pair listed in fields 705-710, the flight schedule database 240 includes the date of each flight in field 715, as well as the departure and arrival times of the respective flight in fields 720 and 725. The airline and flight number associated with each flight are preferably indicated, respectively in fields 730 and 735, and any required connections are also indicated in field 740.

FIG. 8 illustrates an exemplary seat allocation database 245 which maintains available inventory information for each fare class on a given flight offered by the airlines 100, as allocated and updated by the RMS 200. In addition, as inventory is sold by an airline, the ARS 150 will preferably decrement the available inventory recorded in the seat allocation database 245. The seat allocation database 245 includes a plurality of records, each associated with a different flight. For each flight identified by a flight number in field 805, the seat allocation database 245 includes the departure date of the flight in field 810 and the respective inventory available in each inventory class in fields 815 and 820. In addition, the seat allocation database 245 preferably includes an indication of the total number of seats booked on the flight in field 825.

FIG. 9 illustrates an exemplary pricing and restrictions database 250 which maintains pricing information and related restrictions for each flight offered by an airline 100, as established and updated by the RMS 200. The pricing and restrictions database 250 includes a plurality of records, each associated with a different flight. For each flight identified by flight number in field 905, the pricing and restrictions database 245 includes the date of the flight in field 910 and the respective price and restrictions associated with each inventory class in fields 915-930.

FIG. 10 illustrates an exemplary reservations database 255 which maintains booking information for each flight offered by an airline 100. The reservations database 255 includes a plurality of records, each associated with the booking of a ticket for a particular flight.

similar to those created by the RMS 200 in the flight schedule database 240, seat allocation database 245, and pricing and restrictions database 250. Tickets are thus made available to travel agents 110 and their customers through the CRS 300 or, alternatively, to travelers 105 directly via the ARS 150.

FIG. 12 is a flow chart illustrating an exemplary process by which an airline's RMS 200 initially allocates inventory to a special fare listing.

In step 1200, the RMS 200 analyzes route-based information stored in the forecasted demand analysis database 230, the seat allocation database 245 and pricing and restrictions database 250, including: (1) the total number of actual flights for the specified route for the specified day; (2) the current fare/class on those flights; (3) the actual quantity of seats booked within each fare class on those flights relative to the expected quantity of seats booked; and (4) historical demand and pricing data for similar flights from previous relevant time periods.

In an effort to encourage sales, and thus, minimize the difference or gap (See FIG. 5) between the expected and actual quantity of tickets booked on the actual flights, the RMS 200, in step 1205, allocates inventory to the special fare listing at a lower fare/class than the currently available fare/class for the actual flights, based on the analysis in step 1200. As determined by the airline, inventory may be allocated to the special fare listing either at the time actual flights are created or, some time thereafter, as a gap develops between the actual and the expected quantity of seats booked on the actual flights. In step 1210, the RMS 200 generates and stores a record of the inventory allocated to the special fare listing and the associated fare/class in the seat allocation database 245 and pricing and restrictions database 250, respectively.

It is to be understood that the RMS 200 may also track the inventory allocated to the special fare listing and the associated fare/class together with the actual quantity of inventory booked at the fare/class in the forecasted demand analysis database 230. Over time, this will provide the RMS 200 with a demand curve for each selling price at a given fare/class for the special

In step 1210, the RMS 200 also transmits the inventory and fare/class information to the ARS 150. In step 1215, the ARS 150 stores the information locally and then transmits it to the CRS 300, directly, or via the ATP Co. 115. In step 1220, the CRS 300 also stores the allocated inventory and fare/class in the seat allocation database 245 and pricing and restrictions database 250, respectively.

It is to be understood that an airline may allocate inventory to a special fare listing which requires traveler concessions in addition to flight-time flexibility. Fare discounts would then be commensurate with the degree of flexibility afforded the airline in placing the traveler aboard an actual flight. For example, the airline may offer unspecified-time tickets for particular fare classes only, such as first class (K Class), coach (Y Class), one-stop, etc. The airline may also choose to limit unspecified-time tickets to "groups" of travelers (e.g., two or more, or any other number specified by the airline). Further examples of such concessions of flexibility include, but are not limited to, (1) the origin (if there is more than one airport in the area local to the traveler); (2) the destination (if there is more than one airport accessible for the traveler's ultimate destination); (3) the maximum travel time; (4) the number of stops; (5) the number of plane changes; and (6) whether or not non-jet aircraft (e.g., propeller planes) are involved.

FIGS. 13a and 13b are flow charts illustrating an exemplary process by which an airline's RMS dynamically increases or decreases the allocation of inventory to a special fare listing.

In step 1300 of FIG. 13a, the RMS 200 accesses route-based information stored in the forecasted demand analysis database 230, including the actual quantity of seats booked within

each fare class relative to the expected quantity of seats booked on a specific route on a specific day, to determine whether there is unanticipated excess capacity associated with the route on that day.

In step 1305, the RMS 200 accesses the seat allocation database 245 and retrieves the records corresponding to each actual flight for the specific route on the specific day. The RMS also retrieves the record corresponding to the special fare listing for the same route on the same day.

In step 1310, the RMS analyzes the records retrieved from database 245 corresponding to each actual flight to determine whether each actual flight is completely booked (e.g., in FIG. 8, "Remaining Inventory" = 0). If each flight is completely booked, the RMS 200, in step 1315, accesses database 245 and eliminates the remaining inventory allocated to the special fare listing (e.g., "Remaining Inventory" --> 0). For example, a special fare listing during Christmas week may not have any inventory allocated to it because of the heavy traffic that historically comes during the holiday seasons.

If each flight is not completely booked, the RMS 200, in step 1320, determines whether the "Total Inventory Booked" (See FIG. 8) for the special fare listing exceeds the remaining inventory for the actual flights. If it does, the RMS 200, in step 1315, accesses database 245 and eliminates the remaining inventory allocated to the special fare listing. However, if the total inventory booked for the special fare listing does not exceed the remaining inventory for the actual flights, the RMS proceeds to step 1325 and determines whether the remaining inventory for the actual flights exceeds the remaining inventory for the special fare listing. If the remaining inventory for the actual flights does not exceed the remaining inventory for the special fare listing, in step 1330, the RMS 200 maintains the current remaining inventory for the special fare listing. If the remaining inventory for the actual flights exceeds the remaining inventory for the special fare listing, the RMS 200, in step 1335 of FIG. 13b, increases the remaining inventory for the special

fare listing at a fare/class below the currently available fare/class on the actual flights and updates the seat allocation database 245 and pricing and restrictions databases 250, accordingly.

FIGS. 14a and 14b are flow charts illustrating an exemplary process by which travelers book unspecified-time airline tickets.

In step 1400 of FIG. 14a, a traveler 105 contacts his travel agent 110 and requests flight information for a specific itinerary. A specific itinerary necessarily includes the origin and destination locations together with the dates for travel, but may also include such information as travel times, airlines, etc. In step 1405, the travel agent 110 logs into a CRS 300 and queries the CRS 300 for all flights that meet the traveler's specifications. In step 1410, the CRS 300 retrieves the relevant flight information from the flight schedule database 240 and lists the information for the travel agent 110. In step 1415, the travel agent 110 reviews the information and determines whether there is a special fare listing for the requested itinerary. If there is, the travel agent 110 notifies the traveler 105 of the potential availability of an unspecified-time ticket for the requested itinerary and informs the traveler 105 that unspecified-time tickets are offered by the airlines at a lower fare/class than conventional airline tickets.

In step 1420, the traveler 105 instructs the travel agent 110 to purchase the unspecified-time ticket. The travel agent 110, in step 1425, obtains additional details regarding the unspecified-time ticket by retrieving inventory and pricing data for the special fare listing from the seat allocation database 245 and pricing and restrictions database 250, respectively. If there is no inventory remaining for the special fare listing (step 1430), the travel agent 115 will simply re-review the flight information listed by the CRS 300 in step 1410 for actual flight listings. Otherwise, the travel agent 110, in step 1435 of FIG. 14b, will book the unspecified-time ticket for the traveler 105 by creating a passenger name record and reserving a seat at the special fare listing in the CRS 300.

In step 1440, the CRS 300 stores the reservation in the reservation database 255.

In step 1445, the CRS 300 modifies the record for the special fare listing in the seat allocation database 245 by decrementing the "Remaining Inventory" by "1" and incrementing the "Total Inventory Booked" by "1". In step 1446, the CRS 300 receives the actual flight information from RMS 200, including a flight number and departure time, in real-time (*e.g.*, minutes or even seconds after booking the unspecified-time ticket in step 1435) and displays it for the travel agent 110. In step 1448, the CRS 300 accesses the seat allocation database 245 and modifies the record for the actual flight by incrementing the "Total Inventory Booked" by "1" and decrementing the "Total Seats Remaining" by "1". The CRS 300 also modifies the record for the special fare listing by decrementing the "Total Inventory Booked" by "1". In step 1450, the traveler 105 purchases the unspecified-time ticket and is immediately notified by the travel agent 110 of the actual flight information, including a flight number and departure time. In step 1455, the traveler receives an airline ticket for the actual flight.

In an alternate embodiment, the CRS 300 does not receive the actual flight information in real-time. Thus, when the traveler 105 purchases the unspecified-time ticket in step 1450, he receives only the flight number for the special fare listing and a notification date, by which date the traveler 105 will be provided with the actual flight number and a departure time. In step 1455, the traveler 105 then receives an airline ticket, including an actual flight number and departure time, either prior to, or by, the notification date.

FIGS. 15a and 15b are flow charts illustrating an exemplary process by which an airline's RMS selects an actual flight on which to place an unspecified-time ticket holder. In step 1500, the CRS 300 transmits the booking records stored in the reservation database 255 for each airline to that airline's ARS 150 on a real-time basis. The ARS 150, in step 1505, stores the information locally and then transmits it to the RMS 200. In step 1510, the RMS 200 accesses the reservation database 255 and retrieves the booking records corresponding to a given special fare listing. In step 1515, the RMS 200 accesses the flight schedule database 240 and retrieves the

In step 1520, the RMS 200 analyzes on a flight-by-flight basis information stored in the forecasted demand analysis database 230, including: (1) the total number of actual flights for the specified route for the specified day; (2) the current fare/class on each flight; and (3) the expected vs. the actual quantity of booked seats for each class on each actual flight.

In step 1525, the RMS 200 determines whether the expected bookings on one or more of the actual flights exceeds the actual bookings for those flights. The RMS 200, in step 1530 of FIG. 15b, selects one of the actual flights as the flight on which to place the unspecified-time ticket holder. In step 1535, the RMS 200 updates the forecasted demand analysis database 230 and seat allocation database 245, accordingly. In particular, the RMS 200 accesses the forecasted demand analysis database 230 and modifies the record for the actual flight by incrementing the "Actual Quantity Booked" by "1". The RMS 200 also accesses the seat allocation database 245 and modifies the record for: (1) the actual flight by incrementing the "Total Inventory Booked" by "1" and decrementing the "Total Seats Remaining" by "1"; and (2) the special fare listing by decrementing the "Total Inventory Booked" by "1".

In an alternate embodiment, the RMS 200 performs steps 1515 through 1535 for a predetermined number of bookings, even before receiving the booking records from the CRS 300. Thereafter, the RMS 200 can access this information upon receiving each booking record from the CRS 300 to further expedite the placement of the unspecified-time ticket holder aboard an actual flight.

In step 1540, the RMS 200 instructs the ARS 150 to place the passenger on the actual flight. The ARS 150, in step 1545, places the passenger on the actual flight and updates the seat allocation database 245 in the same manner updated by the RMS 200 in step 1535. In step 1547, the ARS 150 transmits the actual flight information back to the CRS 300. The CRS 300

In step 1550, the airline 100 prints the ticket for the actual flight with the actual flight number and the departure/arrival times. In step 1555, the airline 100 transmits the ticket to the traveler 105, either directly or via the travel agent 110.

In an alternate embodiment, the selection of an actual flight on which to place an unspecified-time ticket holder is not a real-time transaction. For example, the CRS 300 may transmit the booking records stored in the reservation database 255 to the ARS 150 on a periodic, rather than a real-time, basis. Similarly, the CRS 300 and the ARS 150 may receive the actual flight information from the RMS 200 hours, days or even weeks, after transmitting the booking records to the ARS 150.

24

An alternate embodiment of the present invention permits an airline to conceal its identity when offering for sale, via a CRS, discounted tickets for flights on a specified route (*e.g.*, NY-LA) on a specified day. As such, this alternate embodiment permits an airline to fill empty seats on its flights without having to lower its own published air fares and initiating a fare war.

Instead of an actual flight number and precise departure/arrival times, the alias flight record contains an alias flight number and time windows (*e.g.*, 8:00 am to 11:00 am, "afternoon", *etc.*), respectively. As such, users accessing the alias flight record are unable to ascertain the identity of the airline (either by way of an actual flight number or a precise departure/arrival times) offering the discounted tickets. The time windows provide customers with useful information regarding the departure/arrival times of the actual flight, but not enough information for a travel agent or another airline to identify the carrier. As with unspecified-time tickets, the time windows (coupled with the discounted fares) make these "concealed carrier" tickets particularly attractive to leisure travelers. It is to be understood that the alias flight record may also optionally include the model of the plane (*e.g.*, Boeing 737), the number of seats on the plane, or any other means by

which a travel agent querying the CRS could assure his customer that the customer, upon booking a concealed carrier ticket, will be flying on a reputable airline.

Moreover, although inaccessible to its users, the CRS contains an alias flight database, which it uses to correlate alias flight numbers with actual flights numbers and carriers (*e.g.*, Alias Flight No. CC78969 corresponds to Continental Airlines Flight No. 36535). This correlation capability permits the CRS to relay bookings of tickets relating to alias flight records to the appropriate carrier and update inventory for the actual flights based on these bookings.

The alias flight records (and the related records in the forecasted demand analysis, seat allocation, pricing and restrictions, and reservation databases) in the RMS, ARS and CRS are created and updated in substantially the same manner as records for special fare listings relating to unspecified-time tickets. The primary difference is as follows: When a customer books an unspecified-time ticket corresponding to a special fare listing, the CRS is unaware of the actual flight upon which the customer will be placed and thus, the CRS must wait to receive this information from the airline before it can update inventory for both the special fare listing and the actual flight. In contrast, when a customer books a concealed carrier ticket corresponding to an alias flight record, the CRS knows the corresponding actual flight and thus, can update inventory immediately. Another difference is that the special fare listing for an unspecified-time ticket is created by the RMS on a "one-per-route" basis, whereas the alias flight record for the concealed carrier ticket is created on a "one-per-flight" basis.

Furthermore, the ticketing process for concealed carrier tickets is also similar to one of the ticketing processes discussed above with respect to unspecified-time tickets. Upon booking a concealed carrier ticket in the CRS, the travel agent issues and transmits to the customer a certified voucher containing the alias flight number and the PNR number created in the CRS. Once the airline receives the booking information from the CRS, it provides the travel agent with a predetermined notification date (*e.g.*, 24 hours prior to departure), by which date the customer

directly or, through the travel agent, will be provided with the carrier identity, actual flight number, and actual departure time. On the day of departure, the customer presents the certified voucher at the airline's flight desk, where the airline confirms the PNR number in the CRS and, if all is in order, presents the customer with a stub from the voucher for boarding the plane. Alternatively, as with unspecified-time tickets, the airline could use electronic ticketing to fulfill such short term ticketing requirements.

The many features and advantages of the present invention are apparent from the detailed specification, and thus, it is intended by the appended claims to cover all such features and advantages of the invention which fall within the true spirit and scope of the present invention.

Furthermore, since numerous modifications and variations will readily occur to those skilled in the art, it is not desired that the present invention be limited to the exact construction and operation illustrated and described herein, and accordingly, all suitable modifications and equivalents which may be resorted to are intended to fall within the scope of the claims.

CLAIMS

We claim:

1. A method comprising the steps of:
transmitting a request to purchase a ticket to travel from a specified departure location to a specified destination location within a specified time range;
receiving a commitment for carriage that satisfies said request but does not specify a departure time;
accepting said commitment for carriage; and
receiving at a time subsequent to said commitment an identification of said departure time.
2. The method of claim 1, wherein said step of accepting said commitment for carriage includes one of reserving a ticket or purchasing a ticket.
3. The method of claim 1, wherein said transmitting a request includes transmitting a request to purchase a ticket for a group of two or more travelers.
4. The method of claim 1, wherein said receiving a commitment for carriage includes receiving a commitment for carriage that further does not specify a price term.
5. The method of claim 3, further comprising the steps of:
transmitting a bid for said ticket; and
receiving an acceptance of said bid.

- receiving at a time subsequent to said commitment an identification of said departure time; and

initiating a notice of said departure time.

12. The method of claim 11, wherein said receiving a request includes receiving a request to purchase a ticket for a group of two or more travelers.

13. The method of claim 11, wherein said receiving a special fare listing includes receiving a special fare listing that further does not specify a price term.

14. The method of claim 13, further comprising the steps of:
transmitting a bid for said ticket; and
receiving an acceptance of said bid.

15. The method of claim 14, wherein said bid is a guaranteed bid.

16. The method of claim 11, wherein said receiving a special fare listing includes receiving a special fare listing that further does not specify an airline.

17. The method of claim 11, wherein said receiving a special fare listing includes receiving a special fare listing that further does not specify a parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

18. The method of claim 11, further comprising the step of receiving a ticket without said departure time printed thereon.

19. The method of claim 18, wherein said step of receiving at a later time an identification of said departure time includes receiving a ticket with said departure time printed thereon.

20. A method comprising the steps of:

creating a special fare listing for air travel to a specified destination location from a specified departure location within a specified time range, said special fare listing excluding a specified departure time;

making available said special fare listing via an electronic reservation system;

examining a plurality of flights which would fulfill the specified terms of a ticket relating to said special fare listing to determine which of said plurality of flights to select for said ticket, each of said plurality of flights including a specified departure time;

selecting one of said plurality of flights; and

providing notification of flight information, including a specified departure time, corresponding to said selected flight.

21. The method of claim 20, wherein said step of examining a flight is performed after booking of said ticket.

22. The method of claim 20, wherein said step of examining a flight is performed prior to booking of said ticket.

23. The method of claim 21, wherein said booking of said ticket specifies groups of two or more travelers.

24. The method of claim 20, wherein said creating a special fare listing includes creating a special fare listing that further does not specify a price term.

25. The method of claim 23, further comprising the steps of:
receiving a bid for said ticket; and
transmitting an acceptance of said bid.

26. The method of claim 24, wherein said bid is a guaranteed bid.

27. The method of claim 20, wherein said creating a special fare listing includes creating a special fare listing that further does not specify an airline.

28. The method of claim 20, wherein said creating a special fare listing includes creating a special fare listing that further does not specify a parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

29. The method of claim 20, further comprising the step of:
upon booking of said ticket, printing a ticket without a departure time indicated thereon.

30. The method of claim 29, wherein said step of providing notification includes the step of printing a ticket with said departure time indicated thereon.

31. A method comprising the steps of:

providing said special fare listing to a buyer;

receiving a booking of a ticket corresponding to said special fare listing from said buyer;

transmitting said booking information to an airline;

receiving an identification of a flight selected by said airline which fulfills the terms of said ticket, said selected flight including a specified departure time.

33. The method of claim 31, wherein said booking of a ticket is limited in terms of availability to groups of two or more travelers.

35. The method of claim 31, wherein said receiving a special fare listing includes receiving a special fare listing that further does not specify a price term.

36. The method of claim 35, further comprising the steps of:
after providing said special fare listing but before receiving a booking of said ticket,
receiving a bid for said ticket from said buyer; and
transmitting an acceptance of said bid to said buyer.

37. The method of claim 36, wherein said bid is a guaranteed bid.

38. The method of claim 31, wherein said receiving a special fare listing includes receiving a special fare listing that further does not specify an airline.

39. The method of claim 31, wherein said receiving a special fare listing includes receiving a special fare listing that further does not specify a parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

40. A method comprising the steps of:

receiving a booking of a ticket to a specified destination location from a specified departure location within a specified time range, said ticket excluding a specified departure time;

examining a plurality of flights which would satisfy the specified terms of said ticket to determine which of said plurality of flights to select for said ticket;

selecting one of said plurality of flights; and

providing notice of said selected flight, wherein said selected flight includes a specified departure time.

41. The method of claim 40, wherein said receiving a booking of a ticket includes receiving said booking limited to groups of two or more travelers.

42. The method of claim 40, wherein receiving a booking of a ticket includes receiving said booking from a central reservation system.

PATENT

Docket No. 3178-4026

43. The method of claim 40, wherein said receiving a booking of a ticket includes receiving said booking from an airline reservation system.

44. The method of claim 40, wherein said step of examining a plurality of flights includes examining an actual quantity of tickets booked within a fare class on each of said plurality of flights relative to a forecasted quantity of tickets booked within said fare class.

45. The method of claim 44, wherein said step of selecting a flight includes selecting a flight for which said expected quantity of tickets booked exceeds said actual quantity of tickets booked.

46. The method of claim 40, wherein said receiving a booking of a ticket includes receiving a booking of a ticket that further does not include a specified airline.

47. The method of claim 40, wherein said receiving a booking of a ticket includes receiving a booking of a ticket that further does not specify a flight parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

48. The method of claim 40, further comprising the steps of:
analyzing route-based information for actual flights; and
allocating inventory to a special fare listing relating to said ticket at a different fare/class than currently available on said actual flights, based on said step of analyzing.

49. A system comprising:

means for creating a special fare listing for air travel to a specified destination location from a specified departure location within a specified time range, said special fare listing excluding a specified departure time;

means for making available said special fare listing via an electronic reservation system;

means for examining a plurality of flights which would fulfill the specified terms of a ticket relating to said special fare listing to determine which of said plurality of flights to select for said ticket, each of said plurality of flights including a specified departure time;

means for selecting one of said plurality of flights; and

means for providing notification of flight information, including a departure time, corresponding to said selected flight.

50. The system of claim 49, wherein said means for examining a flight examines said flight after booking of said ticket.

51. The system of claim 50, wherein said booking of said ticket is limited to groups of two or more travelers.

52. The system of claim 49, wherein said means for creating a special fare listing includes means for creating a special fare listing that further does not specify a price term.

53. The system of claim 52, further comprising:

means for receiving a bid for said ticket; and

means for transmitting an acceptance of said bid.

54. The system of claim 53, wherein said bid is a guaranteed bid.

55. The system of claim 49, wherein said means for creating a special fare listing includes means for creating a special fare listing that further does not specify an airline.

56. The system of claim 49, wherein said means for creating a special fare listing includes means for creating a special fare listing that further does not specify a parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

57. The system of claim 49, further comprising:

upon booking of said ticket, means for printing a ticket without a departure time indicated thereon.

58. A system comprising:

means for receiving a special fare listing for air travel to a specified destination location from a specified departure location within a specified time range, said special fare listing excluding a specified departure time;

means for providing said special fare listing to a buyer;

means for receiving a booking of a ticket corresponding to said special fare listing from said buyer;

means for transmitting said booking to an airline;

means for receiving an identification of a flight selected by said airline which fulfills the terms of said ticket, said selected flight including a specified departure time.

59. The system of claim 58, wherein said airline includes a revenue management system.

60. The system of claim 58, wherein said booking of a ticket is limited in terms of availability to groups of two or more travelers.

61. The system of claim 58, wherein said buyer is a travel agent.

62. The system of claim 58, wherein said means for receiving a special fare listing includes means for receiving a special fare listing that further does not specify a price term.

63. The system of claim 62, further comprising:
 means for receiving a bid for said ticket from said buyer; and
 means for transmitting an acceptance of said bid to said buyer.

64. The system of claim 63, wherein said bid is a guaranteed bid.

65. The system of claim 58, wherein said means for receiving a special fare listing includes means for receiving a special fare listing that further does not specify an airline.

66. The system of claim 58, wherein said means for receiving a special fare listing includes means for receiving a special fare listing that further does not specify a parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

67. A system comprising:

means for examining a plurality of flights which would satisfy the specified terms of said ticket to determine which of said plurality of flights to select for said ticket;

means for initiating notice of said selected flight, wherein said selected flight includes a specified departure time.

68. The system of claim 67, wherein said receiving a booking of a ticket includes receiving said booking limited to groups of two or more travelers.

69. The system of claim 67, wherein said means for receiving a booking of a ticket receives said booking from a central reservation system.

70. The system of claim 67, wherein said means for receiving a booking of a ticket receives said booking from an airline reservation system.

71. The system of claim 67, wherein said means for examining a plurality of flights includes means for examining an actual quantity of tickets booked within a fare class on each of said plurality of flights relative to a forecasted quantity of tickets booked within said fare class.

72. The system of claim 71, wherein said means for selecting a flight includes means for selecting a flight for which said expected quantity of tickets booked exceeds said actual quantity of tickets booked.

73. The system of claim 67, wherein said means for receiving a booking of a ticket includes means for receiving a booking of a ticket that further does not include a specified airline.

74. The system of claim 67, wherein said means for receiving a booking of a ticket includes means for receiving a booking of a ticket that further does not specify a flight parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

75. The system of claim 67, further comprising:

means for analyzing route-based information for actual flights; and

means for allocating inventory to a special fare listing relating to said ticket at a lower fare/class than currently available on said actual flights.

76. A system comprising:

a memory device having embodied therein information relating to a plurality of flights;

a processor in communication with said memory device, said processor configured to:

create a special fare listing for air travel to a specified destination location from a specified departure location within a specified time range, said special fare listing excluding a specified departure time;

make available said special fare listing;

examine a plurality of flights which would fulfill the specified terms of a ticket relating to said special fare listing to determine which of said plurality of flights to select for said ticket, each of said plurality of flights including a specified departure time;

select one of said plurality flights; and

provide notification of flight information, including a departure time, corresponding to said selected flight.

77. The system of claim 76, wherein said processor examines said flight after booking of said ticket.

78. The system of claim 77, wherein said booking of said ticket is limited to groups of two or more travelers.

79. The system of claim 76, wherein said processor is configured to make available flight information that further does not specify a price term.

80. The system of claim 78, wherein said processor is further configured to:
receive a bid for said ticket; and
transmit an acceptance of said bid.

81. The system of claim 80, wherein said bid is a guaranteed bid.

82. The system of claim 76, wherein said processor is configured to create a special fare listing that further does not specify an airline.

83. The system of claim 76, wherein said processor is configured to create a special fare listing that further does not specify a parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

84. The system of claim 76, further comprising:
means for printing a ticket without a departure time indicated thereon.

85. A system comprising:
a memory device having embodied therein information relating to a plurality of

flights;

a processor in communication with said memory device, said processor configured

to:

receive a special fare listing for air travel to a specified destination location from a specified departure within a specified time range, said special fare listing excluding a specified departure time;

provide said special fare listing to a buyer;

receive a booking of a ticket corresponding to said special fare listing from said buyer;

transmit said booking to an airline; and

receive an identification of a flight selected by said airline which fulfills the terms of said ticket, said selected flight including a specified departure time.

86. The system of claim 85, wherein said booking of a ticket is limited in terms of availability to groups of two or more travelers.

87. The system of claim 85, wherein said buyer is a travel agent.

88. The system of claim 85, wherein said processor is configured to receive a special fare listing that further does not specify a price term.

89. The system of claim 88, wherein said processor is further configured to:

receive a bid for said ticket from said buyer; and

transmit an acceptance of said bid to said buyer.

90. The system of claim 88, wherein said bid is a guaranteed bid.

91. The system of claim 85, wherein said processor is configured to receive a special fare listing further does not specify an airline.

92. The system of claim 85, wherein said processor is configured to receive a special fare listing that further does not specify a flight parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

93. A system comprising:

a memory device having embodied therein information relating to a plurality of flights;

a processor in communication with said memory device, said processor configured to:

receive a booking of a ticket to a specified destination location from a specified departure within a specified time range, said ticket excluding a specified departure time;

examine a plurality of flights which would satisfy the specified terms of said ticket
to determine which of said plurality of flights to select for said ticket;

select one of said plurality of flights; and

provide notice of said selected flight, wherein said selected flight includes a specified departure time.

94. The system of claim 93, wherein said receiving a booking of a ticket includes receiving said booking limited to groups of two or more travelers.

95. The system of claim 93, wherein said processor is configured to receive said booking from a central reservation system.

96. The system of claim 93, wherein said processor is configured to receive said booking from an airline reservation system.

97. The system of claim 93, wherein said processor is configured to examine an actual quantity of tickets booked within a fare class on each of said plurality of flights relative to a forecasted quantity of tickets booked within said fare class.

98. The system of claim 97, wherein said processor is configured to select a flight for which said expected quantity of tickets booked exceeds said actual quantity of tickets booked.

99. The system of claim 93, wherein said means for receiving a booking of a ticket includes means for receiving a booking of a ticket that further does not include a specified airline.

100. The system of claim 93, wherein said processor is configured to receive a booking of a ticket that further does not specify a flight parameter selected from the group consisting of a departing airport, a destination airport, a total travel time, a number of stops, and a number of plane changes.

101. The system of claim 93, wherein said processor is further configured to:

allocate inventory to a special fare listing relating to said ticket at a different currently available on said actual flights.

creating an alias flight record based on an actual flight, said alias flight record excluding a carrier name; and

making available said alias flight record for electronic posting in a central reservation system.

103. The method of claim 102, wherein said alias flight record is made available for electronic posting through the Airline Tariff Publishing Company.

104. The method of claim 102, wherein said alias flight record includes a range of departure times.

105. The method of claim 104, further comprising the step of:
receiving information relating to a booking of a ticket corresponding to said
alias flight record, said information including an identification of a customer who booked said
ticket.

106. The method of claim 105, further comprising the step of:
transmitting to said customer an actual flight number corresponding to said actual flight after receiving said booking.

107. The method of claim 106, further comprising the step of:

transmitting to said customer a departure time of said actual flight after receiving said booking.

108. The method of claim 107, wherein said departure time is within said range of departure times.

109. The method of claim 107, wherein said steps of transmitting are performed through a travel agent.

110. A method of electronically posting in a central reservation system flight records for airline flights having discount seats available for booking, comprising the steps of:

posting an alias flight record based on an actual flight, said alias flight record excluding a carrier name;

receiving a booking of a ticket relating to said alias flight record.

111. The method of claim 110 wherein said alias flight record includes an alias flight number.

112. The method of claim 110 wherein said alias flight record includes a range of departure times.

113. The method of claim 110, further comprising the steps of:
correlating said alias flight record with said actual flight to determine said name of said carrier; and
transmitting booking information relating to said booking of said ticket to

said carrier.

114. The method of claim 110, further comprising the step of:
 updating inventory information relating to said alias flight record to reflect
said booking.

115. The method of claim 110, further comprising the step of:
 updating inventory information relating to said actual flight to reflect said
booking.

116. A method of purchasing an airline ticket comprising the steps of:
 accessing a central reservation system having stored therein an alias flight
record based on an actual flight, said alias flight record excluding a carrier name; and
 booking a ticket corresponding to said alias flight record.

117. The method of claim 116, wherein said alias flight record includes an alias
flight number.

118. The method of claim 116, wherein said alias flight record includes a range
of departure times.

119. The method of claim 116, further comprising the step of:
 receiving confirmation of said booking without receiving an identification of
said carrier.

PATENT

Docket No. 3178-4026

120. The method of claim 116, wherein said identification of said carrier is said name of said carrier.

121. The method of claim 119, further comprising the step of:
receiving confirmation of said booking without receiving a departure time of said actual flight.

122. The method of claim 121, further comprising the step of:
receiving an identification of said carrier and said departure time, a predetermined period of time prior to departure of said actual flight.

123. A system comprising:
a memory device;
a processor in communication with said memory device; and
said processor configured in accordance with program instructions in said memory device to:
create an alias flight record based on an actual flight, said alias flight record excluding a carrier name; and
make available said alias flight record for electronic posting in a central reservation system.

124. The system of claim 123, wherein said CPU makes available said alias flight record for electronic posting through the Airline Tariff Publishing Company.

125. The system of claim 123, wherein said alias flight record includes a range of

departure times.

126. The system of claim 125, wherein said processor is further configured to:
 receive information relating to a booking of a ticket corresponding to said
alias flight record, said information including an identification of a customer who booked said
ticket.

127. The system of claim 126, wherein said processor is further configured to:
 transmit an actual flight number corresponding to said actual flight after
receiving said booking.

128. The system of claim 127, wherein said processor is further configured to:
 transmit a departure time of said actual flight after receiving said booking.

129. The system of claim 128, wherein said departure time is within said range
of departure times.

130. The system of claim 128, wherein transmission of said actual flight number
and departure time to said customer is performed through a travel agent.

131. A system for electronically posting in a central reservation system flight
records for airline flights having discount seats available for booking, comprising:

 a memory device;

 a processor in communication with said memory device; and

 said processor configured in accordance with program instructions in said

post an alias flight record based on an actual flight, said alias flight record excluding a carrier name;

receive a booking of a ticket relating to said alias flight record.

133. The system of claim 131 wherein said alias flight record includes a range of departure times.

134. The system of claim 131, wherein said processor is further configured to:
correlate said alias flight record with said actual flight to determine said
name of said carrier; and
transmit booking information relating to said booking of said ticket to said
carrier.

135. The system of claim 131, wherein said processor is further configured to:
update inventory information relating to said alias flight record to reflect said
booking.

136. The system of claim 131, wherein said processor is further configured to:
update inventory information relating to said actual flight to reflect said
booking.

137. A system for purchasing an airline ticket comprising:
a memory device;
a processor in communication with said memory device; and
said processor configured in accordance with program instructions in said
memory device to:
access a central reservation system having stored therein an alias flight
record based on an actual flight, said alias flight record excluding a carrier name; and
book a ticket corresponding to said alias flight record.

138. The system of claim 137, wherein said alias flight record includes an alias
flight number.

PATENT

Docket No. 3178-4026

139. The system of claim 137, wherein said alias flight record includes a range of departure times.

140. The system of claim 137, wherein said processor is further configured to:
receive confirmation of said booking without receiving an identification of
said carrier.

141. The system of claim 137, wherein said identification of said carrier is said
name of said carrier.

142. The system of claim 140, wherein said processor is further configured to:
receive confirmation of said booking without receiving a departure time of
said actual flight.

143. The method of claim 142, wherein said processor is further configured to:
receive an identification of said carrier and said departure time, a
predetermined period of time prior to departure of said actual flight.

ABSTRACT

An unspecified-time airline ticket representing a purchased seat on a flight to be selected later, by the airlines, for a traveler-specified itinerary (e.g., NY to LA on March 3rd) is disclosed. Various methods and systems for matching an unspecified-time ticket with a flight are also disclosed. An exemplary method includes: (1) making available an unspecified-time ticket; (2) examining a plurality of flights which would fulfill the terms of the unspecified-time ticket to determine which flight to select; and (3) providing notification of the selected flight prior to departure. The disclosed embodiments provide travelers with reduced airfare in return for flight-time flexibility and, in turn, permits airlines to fill seats that would have otherwise gone unbooked. Because of the flexibilities required of the unspecified-time traveler, unspecified-time tickets are likely to attract leisure travelers unwilling to purchase tickets at the available published fares and, at the same time, are likely to "fence out" business travelers unwilling to risk losing a full day at either end of their trip. Moreover, the flexibilities required of the unspecified-time traveler need not be limited to a departure time; the flexibilities may also include the airline, the departing airport, the destination airport, or any other restriction that increases the flexibility afforded the airline in placing the traveler aboard a flight. The disclosed embodiments thus permit airlines to fill otherwise empty seats in a manner that stimulates latent and unfulfilled leisure travel demand while leaving their underlying fare structures intact.

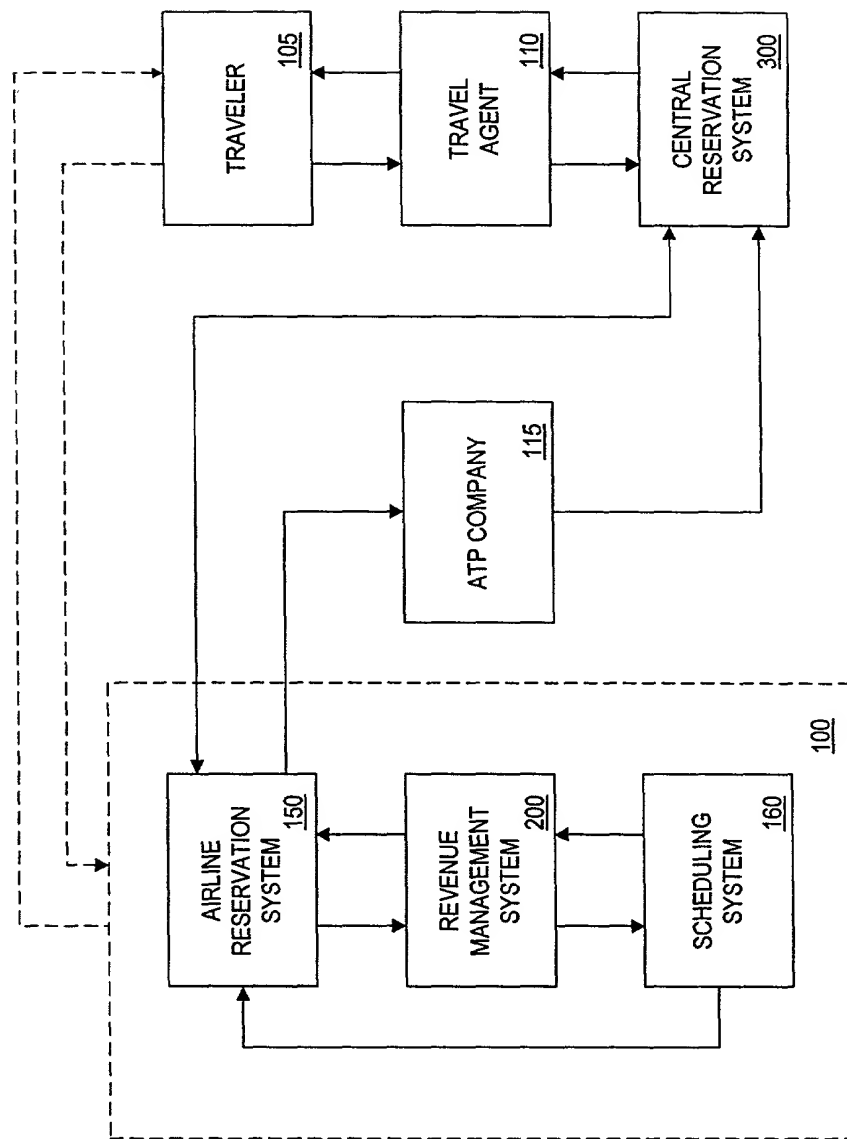


FIG. 1

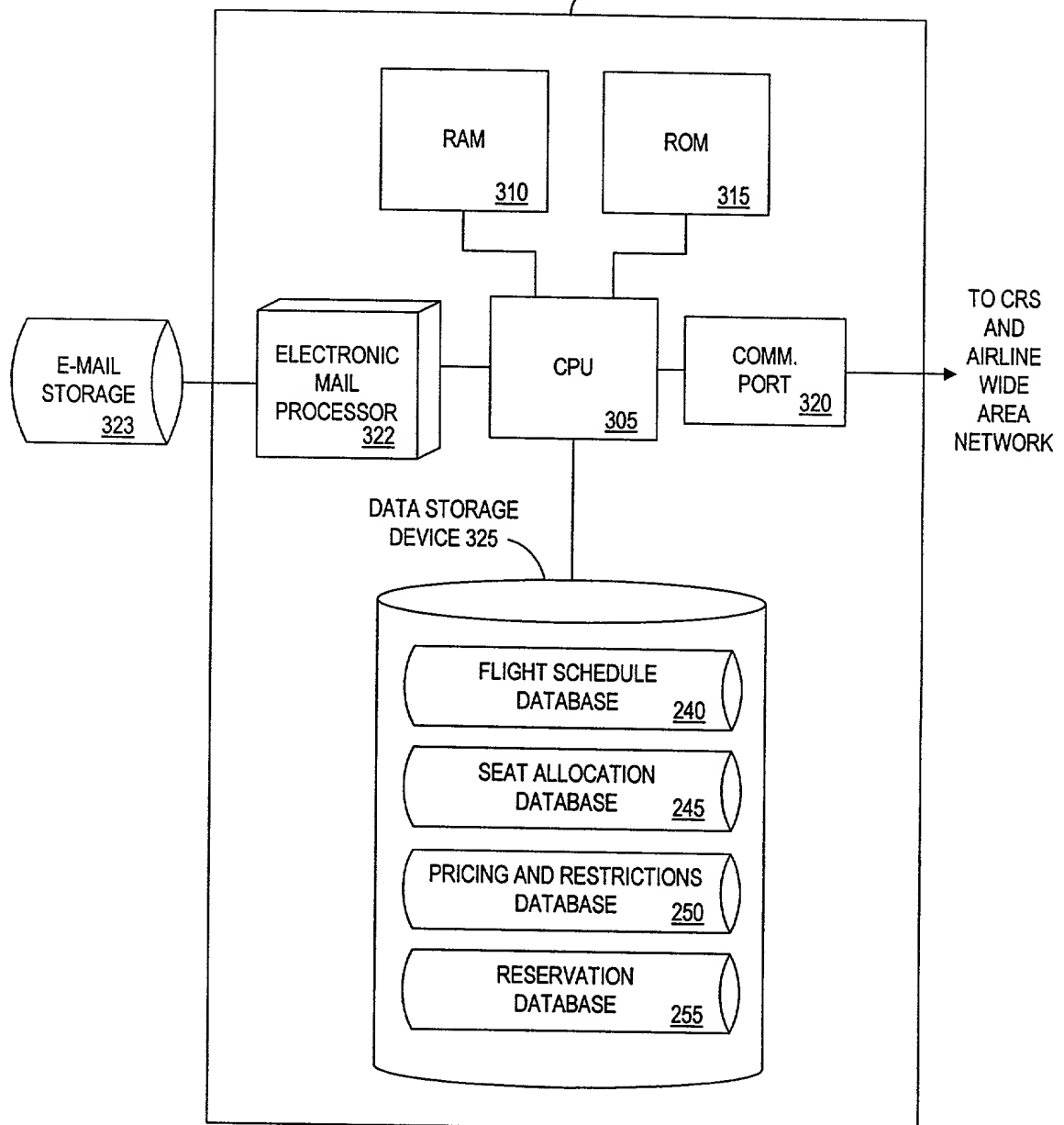


FIG. 3

002020" 5548T 560

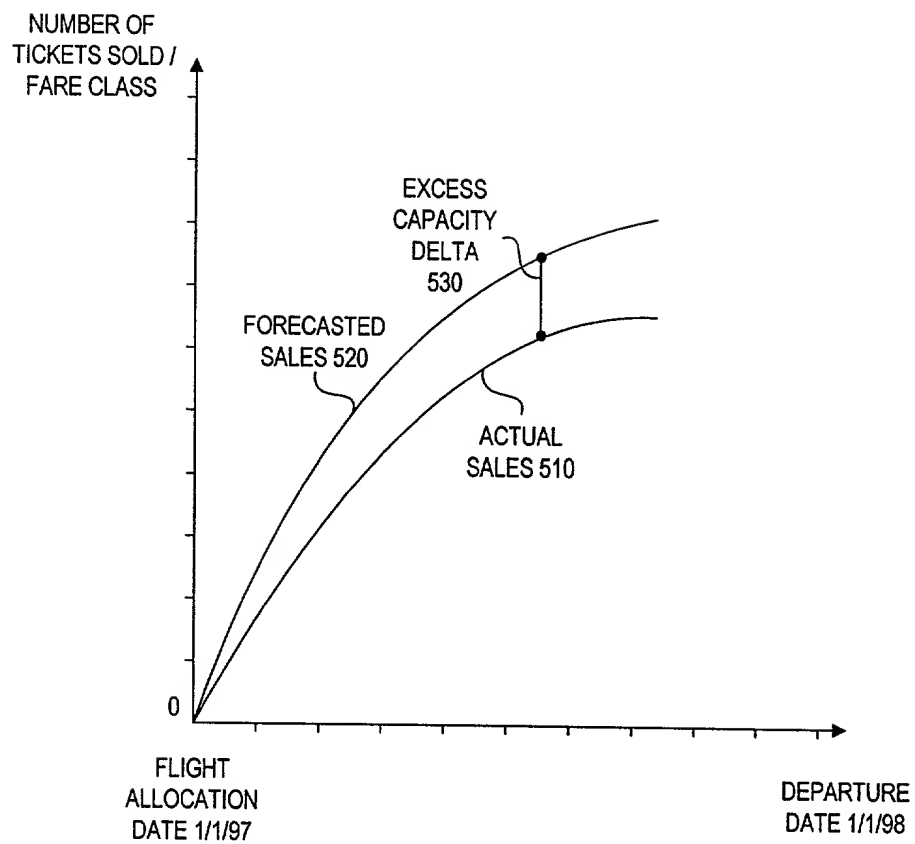


FIG. 5

FORECASTED DEMAND ANALYSIS DATABASE 230



FLIGHT NUMBER 605	DEPARTURE DATE 610	ORIGINATING CITY 615	DESTINATION CITY 620	PRICE 625	CLASS 630	ACTUAL QUANTITY BOOKED 640	EXPECTED QUANTITY BOOKED 650
1234	3/3/97	NEW YORK (JFK)	LOS ANGELES (LAX)	\$349.00	Y	40	70
1234	3/3/97	NEW YORK (JFK)	LOS ANGELES (LAX)	\$339.00	Y	65	90
1234	3/3/97	NEW YORK (JFK)	LOS ANGELES (LAX)	\$329.00	Y	95	125
1234	3/3/97	NEW YORK (JFK)	LOS ANGELES (LAX)	\$409.00	K	7	20
1234	3/3/97	NEW YORK (JFK)	LOS ANGELES (LAX)	\$399.00	K	40	60

FIG. 6

SEAT ALLOCATION DATABASE 245



FLIGHT NUMBER	DEPARTURE DATE	REMAINING INVENTORY K SEATS	REMAINING INVENTORY Y SEATS	TOTAL INVENTORY BOOKED
<u>805</u>	<u>810</u>	<u>815</u>	<u>820</u>	<u>825</u>
1234	3/3/97	33	20	247
4567	3/3/97	50	10	240
2345	3/3/97	5	5	290
9876	3/3/97	47	53	200
A3467	3/3/97	10	10	20

FIG. 8

PRICING AND RESTRICTIONS DATABASE 250



FLIGHT NUMBER 905	DATE 910	INVENTORY K PRICE 915	INVENTORY K RESTRICTION 920	INVENTORY Y PRICE 925	INVENTORY Y RESTRICTION 930
1234	3/3/97	\$399.00	NON STOP	\$339.00	NON STOP
4567	3/3/97	\$329.00	ONE STOP	\$369.00	ONE STOP
A3467	3/3/97	\$209.00	ONE STOP	\$209.00	ONE STOP

FIG. 9

RESERVATION DATABASE 255

FLIGHT NUMBER 1005	ORIGINATING AIRPORT/ DESTINATION AIRPORT 1010	CARRIER 1015	CLASS 1020	PRICE 1025	PASSENGER NAME RECORD 1030
1234	(JFK) - (LAX)	AMERICAN	K	\$399.00	XXXXX
A3467	(JFK) - (LAX)	AMERICAN	N/A	\$209.00	XXXXX

FIG. 10

AIRLINE RMS ANALYZES ROUTE BASED INFORMATION STORED
IN THE FORECASTED DEMAND ANALYSIS DATABASE INCLUDING:
HISTORICAL DEMAND AND PRICING DATA PER FLIGHT AND
DETERMINES HOW MANY FLIGHTS TO OFFER FOR A SPECIFIC
ROUTE ON A DAY TO DAY BASIS

1100



RMS TRANSMITS NUMBER OF FLIGHTS TO BE OFFERED,
DATE OF FLIGHTS TO BE OFFERED, O/D PAIR, AND TIME
PERIODS OF EACH FLIGHT TO AIRLINE SCHEDULING SYSTEM

1110



AIRLINE SCHEDULING SYSTEM CREATES FLIGHT RECORDS
FOR EACH FLIGHT INCLUDING: FLIGHT NUMBER, O/D PAIR,
DEPARTURE/ ARRIVAL TIMES AND DATE

1115



RMS FURTHER INSTRUCTS SCHEDULING SYSTEM TO
CREATE A SPECIAL FARE LISTING FOR THAT ROUTE ON THAT
DAY WITH THE SAME FLIGHT INFORMATION EXCLUDING AN
ACTUAL FLIGHT NUMBER AND DEPARTURE/ARRIVAL TIMES

1120



AIRLINE SCHEDULING SYSTEM CREATES A SPECIAL FARE LISTING RECORD FOR THAT FLIGHT ON THAT DATE INCLUDING ALL FLIGHT INFORMATION EXCEPT DEPARTURE/ARRIVAL TIMES AND AN ACTUAL FLIGHT NUMBER. SPECIAL FLIGHT LISTING NUMBER IS SPECIFIED BY AN "A" IN FRONT OF THE NUMBER

1125



TO FIG. 11B

FIG. 11A

FROM FIG. 11A

B

AIRLINE SCHEDULING SYSTEM ENTERS FLIGHT
RECORDS INTO AIRLINE RESERVATION SYSTEM

1130

ARS STORES FLIGHT INFORMATION IN FLIGHT
SCHEDULE DATABASE

1135

ARS TRANSMITS FLIGHT INFORMATION BACK TO RMS

1140

RMS STORES FLIGHT INFORMATION IN THE FLIGHT
SCHEDULE DATABASE

1145

RMS STORES FLIGHT INFORMATION IN THE FORECASTED
DEMAND ANALYSIS DATABASE

1150

RMS ANALYZES ROUTE BASED INFORMATION FOR EACH
FLIGHT INCLUDING TOTAL NUMBER OF FLIGHTS FOR THAT
ROUTE ON THAT DAY, HISTORICAL DEMAND AND PRICING
DATA FROM PAST FLIGHTS FOR THAT ROUTE AND CURRENT
PRICING INFORMATION. RMS FORECASTS AN EXPECTED
QUANTITY OF BOOKED SEATS AND ASSIGNS A GIVEN
FARE/CLASS FOR THAT FLIGHT

1155

C

TO FIG. 11C

FIG. 11B

FROM FIG. 11B

C

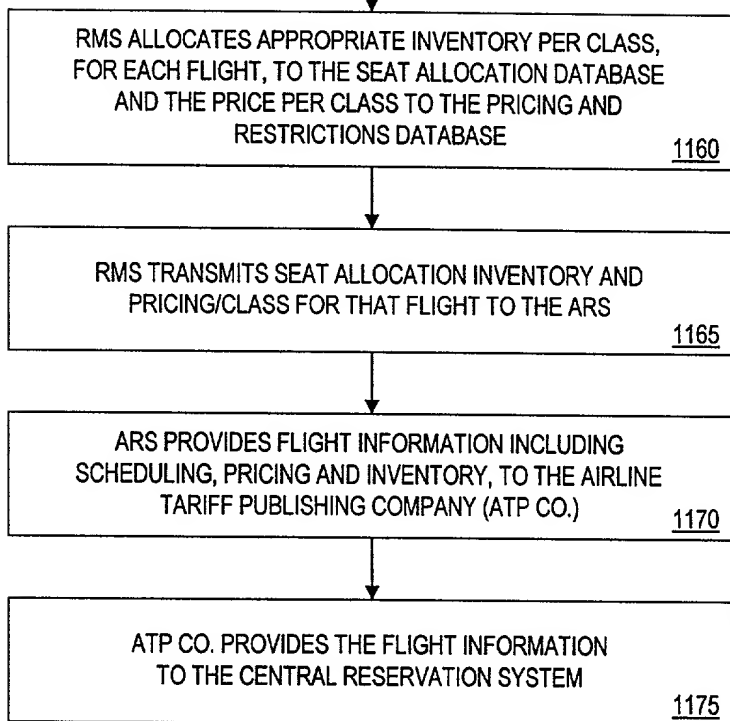


FIG. 11C

RMS ANALYZES ROUTE BASED INFORMATION ON A FLIGHT BY FLIGHT BASIS INCLUDING: NUMBER OF TOTAL FLIGHTS FOR THAT ROUTE ON THAT DAY, CURRENT PRICE OF SEATS PER CLASS, EXPECTED QUANTITY OF BOOKED SEATS PER FLIGHT AT THAT PRICE, ACTUAL BOOKED SEATS PER FLIGHT AT THAT PRICE, HISTORICAL DEMAND AND PRICING DATA FOR SIMILAR FLIGHTS FROM PREVIOUS TIME PERIODS

RMS ALLOCATES X SEATS TO SPECIAL FARE LISTING
INVENTORY AT A LOWER FARE BASED ON FORECASTED
DEMAND ANALYSIS

RMS TRANSMITS ALLOCATED INVENTORY DATA TO ARS AND STORES IT LOCALLY IN SEAT ALLOCATION DATABASE AND FORECASTED DEMAND ANALYSIS DATABASE

ARS STORES INVENTORY DATA IN THE SEAT ALLOCATION DATABASE AND TRANSMITS INVENTORY DATA TO THE CRS

CRS STORES CURRENT INVENTORY DATA FOR THE SPECIAL
FARE LISTING IN THE SEAT ALLOCATION DATABASE

1220

FIG. 12

```

graph TD
    1300[RMS ANALYZES FLIGHT INFORMATION STORED IN FORECASTED DEMAND ANALYSIS DATABASE INCLUDING: EXPECTED VS. ACTUAL QUANTITY OF SEATS BOOKED ON ACTUAL FLIGHTS FOR A SPECIFIC ROUTE ON A SPECIFIC DAY 1300] --> 1305[RMS EXTRACTS NUMBER OF SEATS ALLOCATED TO THE CORRESPONDING SPECIAL FARE LISTING FOR THAT ROUTE ON THAT DAY 1305]
    1305 --> 1310{ARE THE ACTUAL FLIGHTS COMPLETELY BOOKED? 1310}
    1310 -- YES --> 1315[RMS ELIMINATES REMAINING INVENTORY ALLOCATED TO THE SPECIAL FARE LISTING 1315]
    1310 -- NO --> 1320{ARE THERE MORE SPECIAL FARE BOOKINGS THAN SEATS REMAINING ON THE ACTUAL FLIGHTS? 1320}
    1320 -- YES --> 1315
    1320 -- NO --> 1325{ARE THERE MORE SEATS REMAINING ON THE ACTUAL FLIGHTS THAN SEATS ALLOCATED TO THE SPECIAL FARE LISTING? 1325}
    1325 -- YES --> B((B))
    1325 -- NO --> 1330[RMS MAINTAINS CURRENT ALLOCATION OF INVENTORY TO THE SPECIAL FARE LISTING 1330]
    B --> TOFIG13B[TO FIG. 13B]
  
```

TO FIG. 13B

FROM FIG. 13A

B



RMS INCREASES SEATS ALLOCATED TO THE SPECIAL
FARE LISTING INVENTORY

1335

FIG. 13B

```

graph TD
    1400[TRAVELER GOES TO TRAVEL AGENT AND REQUESTS FLIGHT INFORMATION FOR FLIGHTS FROM A SPECIFIC ORIGIN TO A SPECIFIC DESTINATION ON A SPECIFIC DATE 1400] --> 1405[TRAVEL AGENT QUERIES CENTRAL RESERVATION SYSTEM FOR ALL FLIGHT INFORMATION WHICH SATISFIES THE SPECIFIC FLIGHT INFORMATION 1405]
    1405 --> 1410[CENTRAL RESERVATION SYSTEM EXTRACTS THE RELEVANT FLIGHT INFORMATION FROM THE FLIGHT SCHEDULE DATABASE AND LISTS THAT INFORMATION FOR THE TRAVEL AGENT 1410]
    1410 --> 1415[TRAVEL AGENT NOTIFIES TRAVELER OF THE ANYTIME TICKET AVAILABLE FOR A FLIGHT FROM THE SPECIFIED ORIGIN TO THE SPECIFIED DESTINATION ON THE REQUESTED DATE 1415]
    1415 --> 1420[TRAVELER REQUESTS TO PURCHASE AN ANYTIME TICKET AT THE SPECIAL FARE LISTING FOR THAT DATE 1420]
    1420 --> 1425[TRAVEL AGENT EXTRACTS INVENTORY AND PRICE INFORMATION FROM SEAT ALLOCATION AND THE PRICING AND RESTRICTIONS DATABASES 1425]
    1425 --> 1430{IS THERE AVAILABLE INVENTORY? 1430}
    1430 -- YES --> B((B))
    1430 -- NO --> 1435[ ]
    style 1435 fill:none,stroke:none
    B --> 1435
    1435 --> 1440[ ]
    style 1440 fill:none,stroke:none
    1440 --> 1445[ ]
    style 1445 fill:none,stroke:none
    1445 --> 1450[ ]
    style 1450 fill:none,stroke:none
    1450 --> 1455[ ]
    style 1455 fill:none,stroke:none
    1455 --> 1460[ ]
    style 1460 fill:none,stroke:none
    1460 --> 1465[ ]
    style 1465 fill:none,stroke:none
    1465 --> 1470[ ]
    style 1470 fill:none,stroke:none
    1470 --> 1475[ ]
    style 1475 fill:none,stroke:none
    1475 --> 1480[ ]
    style 1480 fill:none,stroke:none
    1480 --> 1485[ ]
    style 1485 fill:none,stroke:none
    1485 --> 1490[ ]
    style 1490 fill:none,stroke:none
    1490 --> 1495[ ]
    style 1495 fill:none,stroke:none
    1495 --> 1500[ ]
    style 1500 fill:none,stroke:none
    1500 --> 1505[ ]
    style 1505 fill:none,stroke:none
    1505 --> 1510[ ]
    style 1510 fill:none,stroke:none
    1510 --> 1515[ ]
    style 1515 fill:none,stroke:none
    1515 --> 1520[ ]
    style 1520 fill:none,stroke:none
    1520 --> 1525[ ]
    style 1525 fill:none,stroke:none
    1525 --> 1530[ ]
    style 1530 fill:none,stroke:none
    1530 --> 1535[ ]
    style 1535 fill:none,stroke:none
    1535 --> 1540[ ]
    style 1540 fill:none,stroke:none
    1540 --> 1545[ ]
    style 1545 fill:none,stroke:none
    1545 --> 1550[ ]
    style 1550 fill:none,stroke:none
    1550 --> 1555[ ]
    style 1555 fill:none,stroke:none
    1555 --> 1560[ ]
    style 1560 fill:none,stroke:none
    1560 --> 1565[ ]
    style 1565 fill:none,stroke:none
    1565 --> 1570[ ]
    style 1570 fill:none,stroke:none
    1570 --> 1575[ ]
    style 1575 fill:none,stroke:none
    1575 --> 1580[ ]
    style 1580 fill:none,stroke:none
    1580 --> 1585[ ]
    style 1585 fill:none,stroke:none
    1585 --> 1590[ ]
    style 1590 fill:none,stroke:none
    1590 --> 1595[ ]
    style 1595 fill:none,stroke:none
    1595 --> 1600[ ]
    style 1600 fill:none,stroke:none
    1600 --> 1605[ ]
    style 1605 fill:none,stroke:none
    1605 --> 1610[ ]
    style 1610 fill:none,stroke:none
    1610 --> 1615[ ]
    style 1615 fill:none,stroke:none
    1615 --> 1620[ ]
    style 1620 fill:none,stroke:none
    1620 --> 1625[ ]
    style 1625 fill:none,stroke:none
    1625 --> 1630[ ]
    style 1630 fill:none,stroke:none
    1630 --> 1635[ ]
    style 1635 fill:none,stroke:none
    1635 --> 1640[ ]
    style 1640 fill:none,stroke:none
    1640 --> 1645[ ]
    style 1645 fill:none,stroke:none
    1645 --> 1650[ ]
    style 1650 fill:none,stroke:none
    1650 --> 1655[ ]
    style 1655 fill:none,stroke:none
    1655 --> 1660[ ]
    style 1660 fill:none,stroke:none
    1660 --> 1665[ ]
    style 1665 fill:none,stroke:none
    1665 --> 1670[ ]
    style 1670 fill:none,stroke:none
    1670 --> 1675[ ]
    style 1675 fill:none,stroke:none
    1675 --> 1680[ ]
    style 1680 fill:none,stroke:none
    1680 --> 1685[ ]
    style 1685 fill:none,stroke:none
    1685 --> 1690[ ]
    style 1690 fill:none,stroke:none
    1690 --> 1695[ ]
    style 1695 fill:none,stroke:none
    1695 --> 1700[ ]
    style 1700 fill:none,stroke:none
    1700 --> 1705[ ]
    style 1705 fill:none,stroke:none
    1705 --> 1710[ ]
    style 1710 fill:none,stroke:none
    1710 --> 1715[ ]
    style 1715 fill:none,stroke:none
    1715 --> 1720[ ]
    style 1720 fill:none,stroke:none
    1720 --> 1725[ ]
    style 1725 fill:none,stroke:none
    1725 --> 1730[ ]
    style 1730 fill:none,stroke:none
    1730 --> 1735[ ]
    style 1735 fill:none,stroke:none
    1735 --> 1740[ ]
    style 1740 fill:none,stroke:none
    1740 --> 1745[ ]
    style 1745 fill:none,stroke:none
    1745 --> 1750[ ]
    style 1750 fill:none,stroke:none
    1750 --> 1755[ ]
    style 1755 fill:none,stroke:none
    1755 --> 1760[ ]
    style 1760 fill:none,stroke:none
    1760 --> 1765[ ]
    style 1765 fill:none,stroke:none
    1765 --> 1770[ ]
    style 1770 fill:none,stroke:none
    1770 --> 1775[ ]
    style 1775 fill:none,stroke:none
    1775 --> 1780[ ]
    style 1780 fill:none,stroke:none
    1780 --> 1785[ ]
    style 1785 fill:none,stroke:none
    1785 --> 1790[ ]
    style 1790 fill:none,stroke:none
    1790 --> 1795[ ]
    style 1795 fill:none,stroke:none
    1795 --> 1800[ ]
    style 1800 fill:none,stroke:none
    1800 --> 1805[ ]
    style 1805 fill:none,stroke:none
    1805 --> 1810[ ]
    style 1810 fill:none,stroke:none
    1810 --> 1815[ ]
    style 1815 fill:none,stroke:none
    1815 --> 1820[ ]
    style 1820 fill:none,stroke:none
    1820 --> 1825[ ]
    style 1825 fill:none,stroke:none
    1825 --> 1830[ ]
    style 1830 fill:none,stroke:none
    1830 --> 1835[ ]
    style 1835 fill:none,stroke:none
    1835 --> 1840[ ]
    style 1840 fill:none,stroke:none
    1840 --> 1845[ ]
    style 1845 fill:none,stroke:none
    1845 --> 1850[ ]
    style 1850 fill:none,stroke:none
    1850 --> 1855[ ]
    style 1855 fill:none,stroke:none
    1855 --> 1860[ ]
    style 1860 fill:none,stroke:none
    1860 --> 1865[ ]
    style 1865 fill:none,stroke:none
    1865 --> 1870[ ]
    style 1870 fill:none,stroke:none
    1870 --> 1875[ ]
    style 1875 fill:none,stroke:none
    1875 --> 1880[ ]
    style 1880 fill:none,stroke:none
    1880 --> 1885[ ]
    style 1885 fill:none,stroke:none
    1885 --> 1890[ ]
    style 1890 fill:none,stroke:none
    1890 --> 1895[ ]
    style 1895 fill:none,stroke:none
    1895 --> 1900[ ]
    style 1900 fill:none,stroke:none
    1900 --> 1905[ ]
    style 1905 fill:none,stroke:none
    1905 --> 1910[ ]
    style 1910 fill:none,stroke:none
    1910 --> 1915[ ]
    style 1915 fill:none,stroke:none
    1915 --> 1920[ ]
    style 1920 fill:none,stroke:none
    1920 --> 1925[ ]
    style 1925 fill:none,stroke:none
    1925 --> 1930[ ]
    style 1930 fill:none,stroke:none
    1930 --> 1935[ ]
    style 1935 fill:none,stroke:none
    1935 --> 1940[ ]
    style 1940 fill:none,stroke:none
    1940 --> 1945[ ]
    style 1945 fill:none,stroke:none
    1945 --> 1950[ ]
    style 1950 fill:none,stroke:none
    1950 --> 1955[ ]
    style 1955 fill:none,stroke:none
    1955 --> 1960[ ]
    style 1960 fill:none,stroke:none
    1960 --> 1965[ ]
    style 1965 fill:none,stroke:none
    1965 --> 1970[ ]
    style 1970 fill:none,stroke:none
    1970 --> 1975[ ]
    style 1975 fill:none,stroke:none
    1975 --> 1980[ ]
    style 1980 fill:none,stroke:none
    1980 --> 1985[ ]
    style 1985 fill:none,stroke:none
    1985 --> 1990[ ]
    style 1990 fill:none,stroke:none
    1990 --> 1995[ ]
    style 1995 fill:none,stroke:none
    1995 --> 2000[ ]
    style 2000 fill:none,stroke:none
    2000 --> 2005[ ]
    style 2005 fill:none,stroke:none
    2005 --> 2010[ ]
    style 2010 fill:none,stroke:none
    2010 --> 2015[ ]
    style 2015 fill:none,stroke:none
    2015 --> 2020[ ]
    style 2020 fill:none,stroke:none
    2020 --> 2025[ ]
    style 2025 fill:none,stroke:none
    2025 --> 2030[ ]
    style 2
```

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 105–112

FROM FIG. 14A

B

TRAVEL AGENT CREATES PASSENGER NAME RECORD
AND RESERVES A SEAT AT THE SPECIAL FARE LISTING FOR
THAT ROUTE ON THE GIVEN DATE IN THE CENTRAL
RESERVATION SYSTEM

1435

RESERVATION IS STORED IN THE RESERVATION DATABASE

1440

CRS MODIFIES THE RECORD FOR THE SPECIAL FARE
LISTING IN THE SEAT ALLOCATION DATABASE BY
DECREMENTING THE "REMAINING INVENTORY" BY "1" AND
INCREMENTING THE "TOTAL INVENTORY BOOKED" BY "1"

1445

CENTRAL RESERVATION SYSTEM RECEIVES THE ACTUAL
FLIGHT INFORMATION INCLUDING FLIGHT NUMBER AND
DEPARTURE TIME IN REAL TIME AND DISPLAYS IT FOR
THE TRAVEL AGENT

1446

CENTRAL RESERVATION SYSTEM ACCESSES THE SEAT
ALLOCATION DATABASE AND UPDATES THE RECORDS
FOR THE ACTUAL FLIGHT AND THE SPECIAL
FARE LISTING ACCORDINGLY

1448

TRAVELER PURCHASES TICKET AND IS IMMEDIATELY
NOTIFIED BY THE TRAVEL AGENT OF THE ACTUAL
FLIGHT INFORMATION

1450

TRAVELER RECEIVES AIRLINE TICKET FOR THE ACTUAL FLIGHT

1455

FIG. 14B

```

graph TD
    1500[CRS TRANSMITS BOOKING INFORMATION TO AIRLINE'S  
ARS ON A REAL TIME BASIS] --> 1505[ARS STORES BOOKING INFORMATION LOCALLY AND  
TRANSMITS IT TO THE RMS]
    1505 --> 1510[RMS EXTRACTS ALL RESERVATIONS MADE ON THE SPECIAL  
FARE LISTING FOR A GIVEN ROUTE ON A GIVEN DATE]
    1510 --> 1515[RMS EXTRACTS ALL ACTUAL FLIGHTS WHICH MEET CRITERIA  
OF THE SPECIAL FARE LISTING: DATE AND O/D PAIR]
    1515 --> 1520[ON A FLIGHT BY FLIGHT BASIS, THE RMS ANALYZES  
INFORMATION STORED IN THE FORECASTED DEMAND  
ANALYSIS DATABASE INCLUDING: TOTAL NUMBER OF FLIGHTS  
FOR THAT ROUTE ON THAT DAY, PRICE/CLASS FOR EACH  
FLIGHT, AND THE EXPECTED VERSUS ACTUAL  
BOOKINGS PER FLIGHT PER CLASS]
    1520 --> 1525[RMS DETERMINES THAT ONE OR MORE FLIGHTS  
HAVE A DISCREPANCY BETWEEN THE ACTUAL  
AND EXPECTED BOOKINGS]
    1525 --> B((B))
    B --> 1530[TO FIG. 15B]
  
```

TO FIG. 15B

FROM FIG. 15A

B

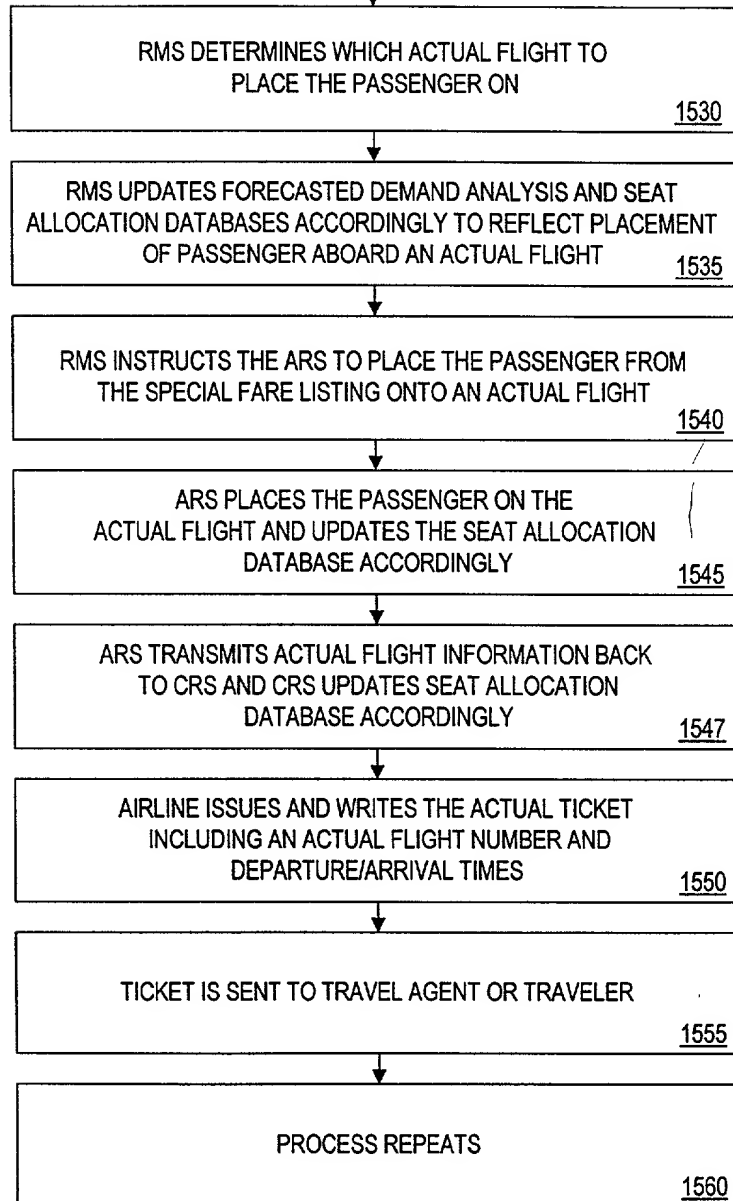


FIG. 15B

COMBINED DECLARATION AND POWER OF ATTORNEY FOR
ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL,
DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A METHOD AND APPARATUS FOR THE SALE OF AIRLINE-SPECIFIED FLIGHT TICKETS
the specification of which

- a. ☒ is attached hereto
- b. ☐ was filed on _____ as application Serial No. _____ and was amended on _____ (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

- c. ☐ was described and claimed in International Application No. _____ filed on _____ and as amended on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

☐ I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or under § 365(b) of any foreign application(s) for patent or inventor's certificate or under § 365(a) of any PCT international application(s) designating at least one country other than the U.S. listed below and also have identified below such foreign application(s) for patent or inventor's certificate or such PCT international application(s) filed by me on the same subject matter having a filing date within twelve (12) months before that of the application on which priority is claimed:

☐ The attached 35 U.S.C. § 119 claim for priority for the application(s) listed below forms a part of this declaration.

Country/PCT	Application Number	Date of filing (day, month, yr)	Date of issue (day, month, yr)	Priority Claimed
<input type="checkbox"/> YES <input type="checkbox"/> NO				

☐ I hereby claim the benefit under 35 U.S.C. § 119(e) of any U.S. provisional application(s) listed below.

Provisional Application No.	Date of filing (day, month, yr)

ADDITIONAL STATEMENTS FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART
OR PCT INTERNATIONAL APPLICATION(S DESIGNATING THE U.S.)

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s) or under § 365(c) of any PCT international application(s) designating the U.S. listed below.

US/PCT Application Serial No.

Filing Date,

Status (patented, pending, abandoned)/
U.S. application no. assigned (For PCT)

[] In this continuation-in-part application, insofar as the subject matter of any of the claims of this application is not disclosed in the above listed prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

[] I hereby revoke all previous Powers of Attorney in this matter.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or Imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorneys and/or agents with full power of substitution and revocation, to prosecute this application, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith: John D. Foley (Reg. No. 16,836), John A. Diaz (Reg. No. 19,550), Thomas P. Dowling (Reg. No. 19,221), John C. Vassil (Reg. No. 19,098), Warren H. Rotert (Reg. No. 19,659), Alfred P. Ewert (Reg. No. 19,887), David H. Pfeffer, P.C. (Reg. No. 19,825), Harry C. Marcus (Reg. No. 22,390), Robert E. Paulson (Reg. No. 21,046), Stephen R. Smith (Reg. No. 22,615), Kurt E. Richter (Reg. No. 24,052), J. Robert Dailey (Reg. No. 27,434), Eugene Moroz (Reg. No. 25,237), John F. Sweeney (Reg. No. 27,471), Arnold I. Rady (Reg. No. 26,601), Christopher A. Hughes (Reg. No. 26,914), William S. Feiler (Reg. No. 26,728), Joseph A. Calvaruso (Reg. No. 28,287), James W. Gould (Reg. No. 28,859), Richard C. Komson (Reg. No. 27,913), Israel Blum (Reg. No. 26,710), Bartholomew Verdirame (Reg. No. 28,483), Maria C. H. Lin (Reg. No. 29,323), Joseph A. DeGirolamo (Reg. No. 28,595), Christopher E. Chalsen (Reg. No. 30,936), Michael A. Nicodema (Reg. No. 33,199), Michael P. Dougherty (Reg. No. 32,730), Seth J. Atlas (Reg. No. 32,454) and Andrew M. Riddles (Reg. No. 31,657) of Morgan & Finnegan, L.L.P. whose address is: 345 Park Avenue, New York, New York 10154; Edward A. Pennington (Reg. No. 32,588) of Morgan & Finnegan, L.L.P., whose address is: 1299 Pennsylvania Avenue, N.W., Suite 960, Washington, D.C. 20004; Jeffrey L. Brandt (Reg. No. 31,490) and Robert R. Lech (Reg. No. 37,169), whose address is Four High Ridge Park, Stamford, CT 06905-1325.

[] I hereby authorize the U.S. attorneys and/or agents named hereinabove to accept and follow instructions from _____ as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and/or agents and me. In the event of a change in the person(s) from whom instructions may be taken I will so notify the U.S. attorneys and/or agents named hereinabove.

I hereby specify the following as the correspondence address to which all communications about this application are to be directed:

SEND CORRESPONDENCE TO: **Peter N. Fill, Esq.**

MORGAN & FINNEGAN, L.L.P., 345 Park Avenue, New York, N.Y. 10154

DIRECT TELEPHONE CALLS TO: (212) 758-4800 or 212-415-8536

- | Parameter | Value | Unit |
|--|--------------------------|------|
| Initial concentration | 1.0 | g/L |
| Initial pH | 7.0 | |
| Temperature | 25 | °C |
| Time | 0-24 | h |
| Agitation speed | 150 | rpm |
| Batch size | 100 | mL |
| Sampling interval | 1 | h |
| Reproducibility | ± 0.5 | % |
| Statistical analysis | ANOVA | |
| Significance level | 0.05 | |
| Software | SPSS 16.0 | |
| Instrumentation | UV-Vis Spectrophotometer | |
| Wavelength | 415 | nm |
| Cell path length | 1 | cm |
| Blank solution | Distilled water | |
| Calibration curve | $y = 0.0001x + 0.0001$ | |
| R-squared value | 0.9999 | |
| Detection limit | 0.0001 | g/L |
| Quantification limit | 0.0005 | g/L |
| Linearity | 0.9999 | |
| Stability | ± 0.0001 | g/L |
| Recovery | 100 | % |
| Accuracy | ± 0.0001 | g/L |
| Precision | ± 0.0001 | g/L |
| Robustness | ± 0.0001 | g/L |
| Reliability | ± 0.0001 | g/L |
| Validity | ± 0.0001 | g/L |
| Usefulness | ± 0.0001 | g/L |
| Feasibility | ± 0.0001 | g/L |
| Cost-effectiveness | ± 0.0001 | g/L |
| Environmental impact | ± 0.0001 | g/L |
| Safety | ± 0.0001 | g/L |
| Compliance | ± 0.0001 | g/L |
| Documentation | ± 0.0001 | g/L |
| Training | ± 0.0001 | g/L |
| Quality control | ± 0.0001 | g/L |
| Continuous improvement | ± 0.0001 | g/L |
| Customer satisfaction | ± 0.0001 | g/L |
| Supplier performance | ± 0.0001 | g/L |
| Process efficiency | ± 0.0001 | g/L |
| Product quality | ± 0.0001 | g/L |
| Market demand | ± 0.0001 | g/L |
| Competitive advantage | ± 0.0001 | g/L |
| Brand reputation | ± 0.0001 | g/L |
| Customer loyalty | ± 0.0001 | g/L |
| Employee satisfaction | ± 0.0001 | g/L |
| Management effectiveness | ± 0.0001 | g/L |
| Organizational culture | ± 0.0001 | g/L |
| Leadership | ± 0.0001 | g/L |
| Communication | ± 0.0001 | g/L |
| Teamwork | ± 0.0001 | g/L |
| Problem solving | ± 0.0001 | g/L |
| Decision making | ± 0.0001 | g/L |
| Conflict resolution | ± 0.0001 | g/L |
| Change management | ± 0.0001 | g/L |
| Project management | ± 0.0001 | g/L |
| Risk management | ± 0.0001 | g/L |
| Financial management | ± 0.0001 | g/L |
| Human resources management | ± 0.0001 | g/L |
| Information technology management | ± 0.0001 | g/L |
| Legal management | ± 0.0001 | g/L |
| Marketing management | ± 0.0001 | g/L |
| Operations management | ± 0.0001 | g/L |
| Procurement management | ± 0.0001 | g/L |
| Quality management | ± 0.0001 | g/L |
| Research and development management | ± 0.0001 | g/L |
| Sales management | ± 0.0001 | g/L |
| Service management | ± 0.0001 | g/L |
| Supply chain management | ± 0.0001 | g/L |
| System management | ± 0.0001 | g/L |
| Technology management | ± 0.0001 | g/L |
| Training management | ± 0.0001 | g/L |
| Vendor management | ± 0.0001 | g/L |
| Workforce management | ± 0.0001 | g/L |
| Business process management | ± 0.0001 | g/L |
| Customer relationship management | ± 0.0001 | g/L |
| Enterprise resource planning | ± 0.0001 | g/L |
| Customer data management | ± 0.0001 | g/L |
| Product lifecycle management | ± 0.0001 | g/L |
| Project portfolio management | ± 0.0001 | g/L |
| Risk assessment | ± 0.0001 | g/L |
| Financial forecasting | ± 0.0001 | g/L |
| Human resources planning | ± 0.0001 | g/L |
| Information technology planning | ± 0.0001 | g/L |
| Legal compliance | ± 0.0001 | g/L |
| Marketing strategy | ± 0.0001 | g/L |
| Operations strategy | ± 0.0001 | g/L |
| Procurement strategy | ± 0.0001 | g/L |
| Quality strategy | ± 0.0001 | g/L |
| Research and development strategy | ± 0.0001 | g/L |
| Sales strategy | ± 0.0001 | g/L |
| Service strategy | ± 0.0001 | g/L |
| Supply chain strategy | ± 0.0001 | g/L |
| System strategy | ± 0.0001 | g/L |
| Technology strategy | ± 0.0001 | g/L |
| Training strategy | ± 0.0001 | g/L |
| Vendor strategy | ± 0.0001 | g/L |
| Workforce strategy | ± 0.0001 | g/L |
| Business process strategy | ± 0.0001 | g/L |
| Customer relationship strategy | ± 0.0001 | g/L |
| Enterprise resource planning strategy | ± 0.0001 | g/L |
| Customer data strategy | ± 0.0001 | g/L |
| Product lifecycle strategy | ± 0.0001 | g/L |
| Project portfolio strategy | ± 0.0001 | g/L |
| Risk assessment strategy | ± 0.0001 | g/L |
| Financial forecasting strategy | ± 0.0001 | g/L |
| Human resources planning strategy | ± 0.0001 | g/L |
| Information technology planning strategy | ± 0.0001 | g/L |
| Legal compliance strategy | ± 0.0001 | g/L |
| Marketing strategy | ± 0.0001 | g/L |
| Operations strategy | ± 0.0001 | g/L |
| Procurement strategy | | |

The following are cited in or pertinent to the declaration attached to the accompanying application:

- (1) prior art cited in search reports of a foreign patent office in a counterpart application, and
- (2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the

application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other ...

Title 35, U.S. Code § 103

Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Title 35, U.S. Code § 112 (in part)

Specification

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Title 35, U.S. Code, § 119

Benefit of earlier filing date in foreign country; right of priority

An application for patent for an invention filed in this country by any person who has, or whose legal representatives or assigns have, previously regularly filed an application for a patent for the same invention in a foreign country which affords similar privileges in the case of applications filed in the United States or to citizens of the United States, shall have the same effect as the same application would have if filed in this country on the date on which the application for patent for the same invention was first filed in such foreign country, if the application in this country is filed within twelve months from the earliest date on which such foreign application was filed; but no patent shall be granted on any application for patent for an invention which had been patented or described in a printed publication in any country more than one year before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country more than one year prior to such filing.

Title 35, U.S. Code, § 120

Benefit or earlier filing date in the United States

If you have any questions, please contact Morgan & Finnegan, L.L.P.